Section No.	Content/Service Operation

Rev. 4. 5/06

Franke New Equipment
Limited Warranty & Service Commitment

Franke Foodservice Systems ("Franke") warrants new equipment manufactured in Franke's own facilities and installed in the United States and Canada to be free of defects due to poor materials or workmanship for the period of time listed below (following the date of original installation):

Franke-Manufactured Equipment

- Stainless Steel Surfaces – Life of the equipment
- Compressor -- 5 Year Extended Warranty, as detailed below
- All Other Components – 1 Years Parts and Labor
- Replacement (Authorized Service) parts – 90 Days Parts and Labor

5-Year Extended Compressor Warranty

- One Year from Date of Installation – Parts & Labor
- 2nd through 5th Year from Date of Installation – Parts only

  In accordance with the compressor manufacturer's policy, the serial number plate affixed to the compressor must be returned with the service invoice before reimbursement will be made.

Exclusions. Certain Franke parts that are expendable by nature and that need to be replaced frequently may not be covered. Franke is not liable under these warranties for repairs or damages due to improper operation, attempted repairs or installation by unauthorized persons, alterations, water quality, abuse, fire, flood, or acts of God. Additionally, this warranty may be voided in the case of:

- Failure to follow Franke instructions for use, care or maintenance
- Removal, alteration or defacing of the Franke-affixed serial number
- Service by a non-authorized service company

This warranty is conditional upon Franke receiving notice of any defect subject to this warranty within thirty (30) days of its original discovery by the Buyer.

Other Equipment (Not Manufactured by Franke)

Equipment not manufactured by Franke (commonly known as "buyouts" or purchased goods) and manufactured by other entities is covered by the warranties, if any, of such third-party manufacturers. Where such third party manufacturers provide warranties on any or all portions of said "buyouts," Franke agrees to transfer all such warranties to the Buyer.

Service Commitment

Franke Foodservice Systems' Technical Support Department and its third-party Service Network are committed to meeting the unique service needs of restaurant operators. Accordingly, we strive to provide the following response times to service requests for Franke-manufactured equipment:

1. Provide contact with the customer…
   - Within 30 minutes of request for service during normal business hours
   - Within 90 minutes after normal business hours (including weekends)
2. Perform service visit
   - The same day for emergency service*

   - Within 24 hours for standard service
3. Target a 90% “first call” fix rate
4. Provide 90-day warranty on service performed

**For the purposes of this warranty, “emergency” is defined as an equipment operating condition that poses an immediate risk to the safety of restaurant workers or customers.*

This response time breakdown applies throughout the week and weekend. Due to varying customer locations, and varying service agent locations and schedules, response rates may occasionally be extended. In these situations, Franke Technical Support will work directly with the customer to find mutually suitable options. Franke reserves the right to use service agents outside of the stated Service Network.

Service Network

United States and Canada

Franke fully supports and is a member of the National Service Cooperative (“NSC”), the leading independent provider of factory-authorized service in North America. Franke provides 24-hour, 7-days-a-week response to customer service requests, through its own Call Center and that of the NSC.

Whenever possible, Franke selects service agents who belong to the Commercial Food Equipment Service Association. This trade association currently has more than 450 members in the United States, Canada, Mexico and Puerto Rico.

When Franke cannot select a CFESA member, it nonetheless adheres to the CFESA standard for qualified service agents in North America. Among them are:

- 24 Hour emergency service
- Factory authorized warranty service
- Factory trained and certified technicians
- OEM parts availability
- System for communication with field technicians

Performance of service agents, including their parts stocking abilities, call response time, service rates and customer satisfaction are monitored by the Franke Field Service Department via online, written and phone surveys. Franke Technical Support updates this Service Network list annually.

Contact Information:

Franke Technical Services
1-800-5FRANKE (1-800-537-2653); select option 5
FS-TS@Franke.com

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The Problem	Possible Cause	What To Check & Do
Main Power Not "ON"	Power not available to unit:	Breaker OK? Yes = Continue; No = Call electrician
		Receptacle OK? Yes = Continue; No = Call electrician
	Power cord OK?	Yes = Continue; No = Replace power cord
	Main power switch?	Yes = Check for loose wires on back of switch; No = Replace switch, ***[See Sect. 2.13]***
No Display On Control Panel	No power to machine?	See Main Power Not "ON" instructions above.
	Temperature Indicator displaying temperature?	Yes = continue; No = check 24-Volt AC transformer; ***[See Sect. 2.14 for temperature indicator replacement]***
	No power to <u>one</u> lane only:	"Push & Hold" touch pad for 2 seconds (required) to turn each lane ON: Display ON? Yes = Test & return unit to service; No = continue…
	24-Volt DC Power Supply OK?	Yes = continue…; No = replace Power Supply per ***Section 2.15***
	PC Control Board OK?	Yes = continue…; No = replace Control Board per ***Section 2.16***
	Ribbon Cable OK?	Yes = continue…; No = replace Ribbon Cable
	Operator's Panel OK?	Yes = Return unit to service; No = replace Operator Panel per ***Section 2.12***
Low Product Light Is Flashing	French fries in Hopper?	Yes = continue; No = fill with fries to sensor level or simulate fries present to test.
	Low product sensor out of calibration?	Calibrate low product sensor per ***Section 3.1***; Is light still flashing? Yes = continue…; No = Return unit to service.
	Low Product Sensor defective?	Yes = replace Low Product Sensor per ***Section 2.9***; No = continue…
	PC Control Board failed?	Yes = replace PC Board per ***Section 2.16***; No = call Franke Technical Support.
"Reset Lane" Light is **ON** [Failure to tare error]	Is Hopper, Drum & Baffle assembled correctly?	Yes = continue…; No = reassemble correctly & press RESET LANE touch pad
	Is Product Chute assembled correctly?	Yes = continue…; No = reassemble correctly & press RESET LANE touch pad
"Reset Lane" Light is **Flashing** [Time out error]	French fries in hopper?	Yes = continue…; No = Fill with fries & continue…
	Reset Lane Button?	Press "Reset Lane" button; after 20 seconds, did "Lane Ready" light illuminate? Yes = Return unit to service; No = continue…
	Fries Bridge In Hopper?	Open door and press "Reset Lane" button again. Did drum rotate? Yes = look for fries bridged inside hopper due to thawing and refreezing. Disrupt bridge by hand. Press Reset Button. No = Go to "No Fries Dispensed" section which follows.

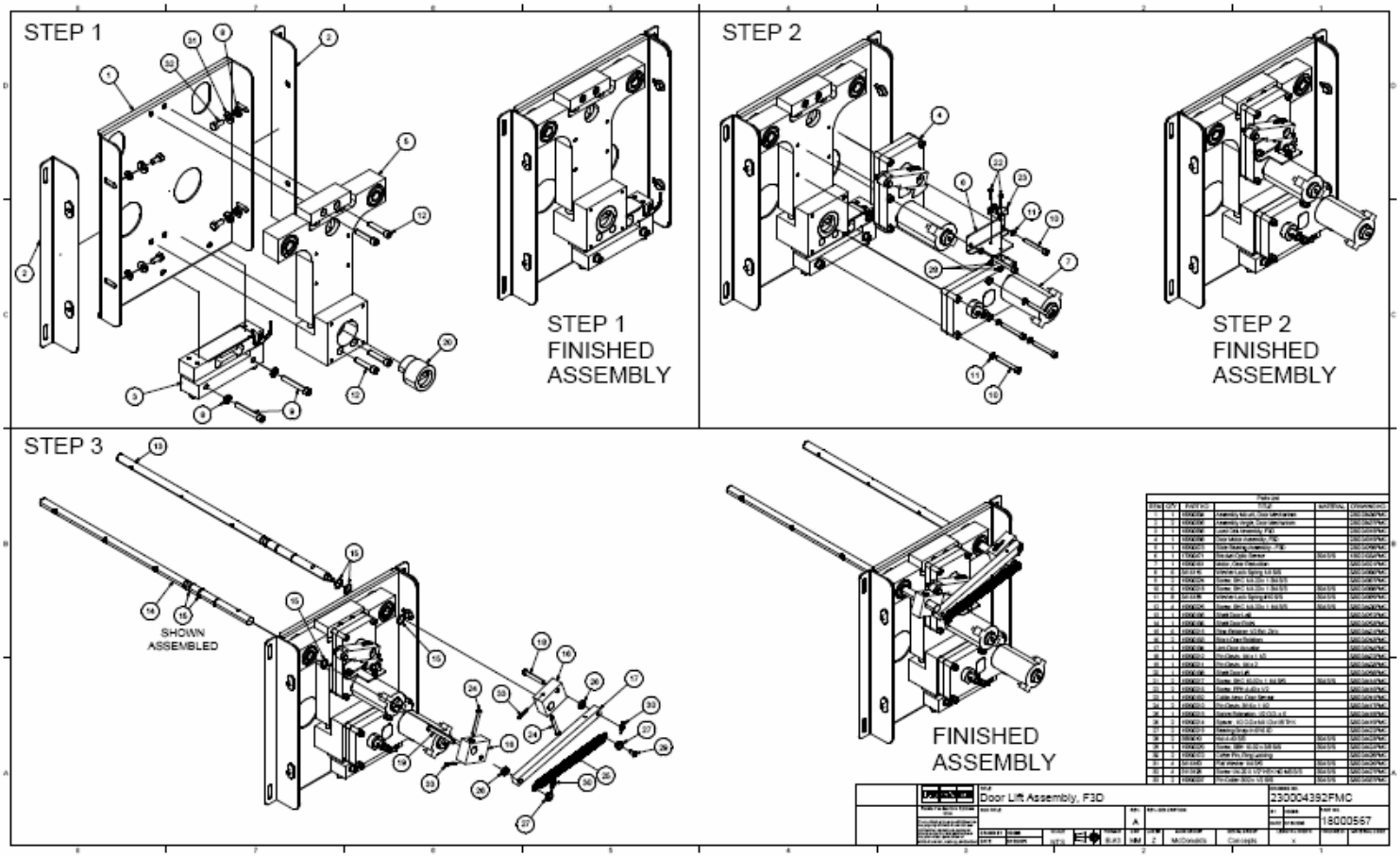
[NEXT PAGE]

The Problem	Possible Cause	What To Check & Do
NO Fries Dispensed	Not allowing enough cycle time?	Wait 8 seconds after dispensing fries; did "Lane Ready" light illuminate? Yes = withdraw basket and reinsert. If no fries, go to Basket Present sensor item below.
	Fries bridge forming inside Hopper?	Open freezer door and press "Reset Lane" button; did drum rotate? Yes = look for fries bridged inside hopper due to thawing and refreezing; disrupt bridge by hand...
	Drum Is binding inside Hopper?	No = Remove hopper/drum assembly & repeat; does drum rotor drive rotate? Yes = drum is binding inside hopper; clear obstacle [i.e. ice] then replace hopper/drum and retry this step. No = continue…
	Drum Rotor Motor failure?	Check power from PC Board to drum rotor motor. Is it getting 24-Volt DC? Yes = remove drum rotor motor and check for free rotation of drive rotor shaft. If free, replace drum motor per ***Section 2.3***
	PC Control Board?	No = check 24-Volt DC power to PC Control Board? Yes [Has power] = replace PC Control Board per ***Section 2.16***
	24-Volt DC Power Supply?	No = Check for 115-Volt AC input to power supply? Yes [OK] = replace 24-Volt DC power supply per ***Section 2.15***
	Main Power Switch/Main Power Supply?	No = Check 115-Volt AC input from Main Power Switch & power supply to unit. If Yes/Main Power is OK = replace Power Switch per ***Section 2.13***; if No = see section: Main Power Not "ON".
NO Fries Dispensed: [Dispense Doors Do Not Open]	First things to check:	Is LANE OFF/ON button illuminated? Yes = Continue… No = Press and hold LANE OFF/ON button for 1.5 seconds. Did LANE READY button lights turn on within 20 seconds? Yes = Continue…No = Go to "Reset Lane" Indicator Flashing section above.
	Basket Present Sensor?	Remove basket from dispenser area and identify Basket Present Sensor for lane not working. Is LED on backside of Basket Present sensor illuminated? Yes = Install fry basket; does LED on backside of sensor change its brightness? Yes = basket sensor is OK.
		Check DOOR OPEN motor assembly (see below) No = Replace Basket Present Sensor per ***Section 2.10***.
	Control Wiring Harness?	No = Is wiring harness from basket present sensor connected to PC Control Board? Yes = Continue… No = Connect (or replace if damaged) cable assembly & return to LED check described above.

[Continue…NEXT PAGE]

The Problem	Possible Cause	What To Check & Do
NO Fries Dispensed: [Dispense Doors Do Not Open] Continued…	Does PC Control Board have 24-Volt DC power input from supply?	No = replace Power Supply per ***Section 2.15***; Yes = check momentary +24-VDC and –24-VDC input to Door Open Motor by removing basket and reinserting into dispense position. Did 24-Volt DC signal occur?
	Door Open Motor/Slide Assembly?	Check Slide Assembly for binding components. If OK = replace 24-Volt DC Door Open Motor per ***Section 2.7***
	PC Control Board?	If 24-Volt DC Power, Door-Open Motor & Slide Assembly are OK, replace PC Control Board per ***Section 2.16***
Product Dispensing Doors Remain OPEN	Door Closing Spring?	Are doors partially open and easily moved by hand? Yes = Replace Door Closing [Extension] Spring per ***Section 2.8***
	Broken Link? Door Open Sensor?	Check for broken link between door shaft blocks on rear of unit. Yes = Replace using Spring & Link Repair Kit P/N 18000798. No = Locate Door Open Sensor and actuating flag on rear of unit. Is sensor functioning? No = Replace Door Open Sensor per ***Section 2.11***
LANE READY Indicator LCD On, Doors Open…But No Product Dispensed	Load Cell Calibration?	Remove upper back panel. Press Load Size button and record "T=" numbers (5 digits) on LED display on upper right of PC Control Board. Numbers should vary by 50 – 100 counts when load size is changed between: Small-Medium-Large. If not, Load Cell Calibration may be incorrect (calibrated for 0 weight); See ***Section 3.7*** for Load Cell Calibration procedure.
Wrong Load Size: Too Few Fries	Hopper Low On Fries?	Is LOW PRODUCT light on Operators Panel flashing? Yes = Refill hopper with Mac Fries; No = Continue…
	Load Size Setting?	Is LOAD SIZE selected correctly (Small, Medium or Large)? Yes = Continue… No = Select correct load size and restart this Lane.
	Frozen Fries Bridge?	Have French Fries formed a bridge inside hopper (thawed and re-frozen)? Yes = Break bridge inside hopper by gentle hand agitation of product. No = Continue…
	Product Chute Alignment?	Is metal Product Chute assembled correctly inside freezer? Yes = Continue… No = Reassemble F3D parts correctly per Operators Manual.
	Load Cell Calibration?	Recalibrate Load Cell per ***Section. 3.7***. Did recalibration procedure correct "too few fries" problem? Yes = Return unit to service; No = See Load Size Adjustment procedure in ***Section 3.4*** [Note: Usually required at installation only.]

The Problem	Possible Cause	What To Check & Do
Wrong Load Size: Too Many Fries	Load Size Setting?	Is Load Size selection on Operator's Panel as desired? Yes = Continue… No = Change Load Size selection to desired basket fill level.
	Rubber Product Baffle?	Is rubber baffle assembled inside hopper? If YES = continue… No = find and insert it. [Note: See Operators Manual for assembly directions.]
	Product Chute Alignment?	Is metal Product Chute (funnel shape) assembled below hopper and positioned above dispense doors correctly? Yes = Continue… No = Reassemble Product Chute per Operators Manual instructions.
	Freezer Bottom improperly installed?	Is Freezer Bottom assembled inside freezer upside down or backwards? Yes = Remove freezer bottom and install per Operators Manual instructions. No = Continue…
	Loose fries buildup?	Is small gap between outside of Product Chute and plastic Freezer Bottom clear of loose fries and other debris? Yes = Continue; No = Clean out loose fries and reassemble Freezer Bottom and Product Chute per Operators Manual instructions.
	Load Cell calibration?	Follow Load Cell Calibration Procedure per ***Section 3.7***. Did this procedure correct problem of "Too Many Fries"? Yes = Return unit to service. No = Continue…
	Dispense Door up/down movement?	Check Dispense Door Slide Assembly for free up/down motion; if any signs of component corrosion are evident, replace slide assembly per ***Section 2.4A*** or replace complete Automation Assembly per ***Section 2.4***. Did this procedure correct problem of "Too Many Fries"? Yes = Return unit to service. No = Contact Franke Service Department for next troubleshooting steps at 1-800-537-2653, option 5.



Parts List					
ITEM	QTY	PART NO.	TITLE	MATERIAL	DRAWING NO.
1	1	18000334	Assembly Mount, Door Mechanism		230004436FMC
2	2	18000335	Assembly Angle, Door Mechanism		230004437FMC
3	1	18000555	Load Cell Assembly, F3D		230004315FMC
4	1	18000558	Door Motor Assembly, F3D		230004319FMC
5	1	18000673	Slide Bearing Assembly - F3D		230004258FMC
6	1	17000471	Bracket Optic Sensor	304 S/S	130001034FMC
7	1	19000181	Motor, Gear Reduction		330004321FMC
8	6	3416118	Washer Lock Spring 1/4 S/S		330004396FMC
9	2	19000224	Screw, SHC 1/4-20 x 1 3/4 S/S		330004397FMC
10	6	19000218	Screw, SHC 1/4-20 x 1 3/4 S/S	304 S/S	330004398FMC
11	8	3416136	Washer Lock Spring #10 S/S	304 S/S	330004399FMC
12	4	19000225	Screw, SHC 1/4-20 x 1 1/4 S/S	304 S/S	330004400FMC
13	1	19000195	Shaft Door Left		330004252FMC
14	1	19000196	Shaft Door Right		330004253FMC
15	6	19000215	Ring Retainer 1/2 Ext. Zink		330004401FMC
16	2	19000193	Block Door Rotation		330004243FMC
17	1	19000194	Link Door Actuator		330004244FMC
18	1	19000212	Pin Clevis, 1/4 x 1 1/2		330004402FMC
19	1	19000211	Pin Clevis, 1/4 x 2		330004403FMC
20	1	19000198	Shaft Door Lift		330004255FMC
21	2	19000217	Screw, SHC 10-32 x 1 1/4 S/S	304 S/S	330004414FMC
22	2	19000216	Screw, PPH 4-40 x 1/2		330004416FMC
23	1	19000192	Cable Assy. Door Sensor		330004241FMC
24	2	19000210	Pin Clevis, 3/16 x 1 1/2		330004417FMC
25	1	19000213	Spring Extension, 1/2 O.D. x 5		330004418FMC
26	2	19000214	Spacer, 1/2 O.D.x 1/4 I.D.x1/8 THK		330004419FMC
27	2	19000219	Bearing Snap-In 5/16 ID		330004422FMC
28	2	3589010	Nut 4-40 S/S	304 S/S	330004423FMC
29	1	19000220	Screw, SBH 10-32 x 3/8 S/S	304 S/S	330004424FMC
30	2	19000170	Cotter Pin, Ring Locking		330004425FMC
31	4	3416160	Flat Washer 1/4 S/S	304 S/S	330004426FMC
32	4	3113128	Screw 1/4-20 X 1/2" HEX HD MS S/S	304 S/S	330004427FMC
33	2	19000207	Pin Cotter 3/32 x 1/2 S/S	304 S/S	330004337FMC

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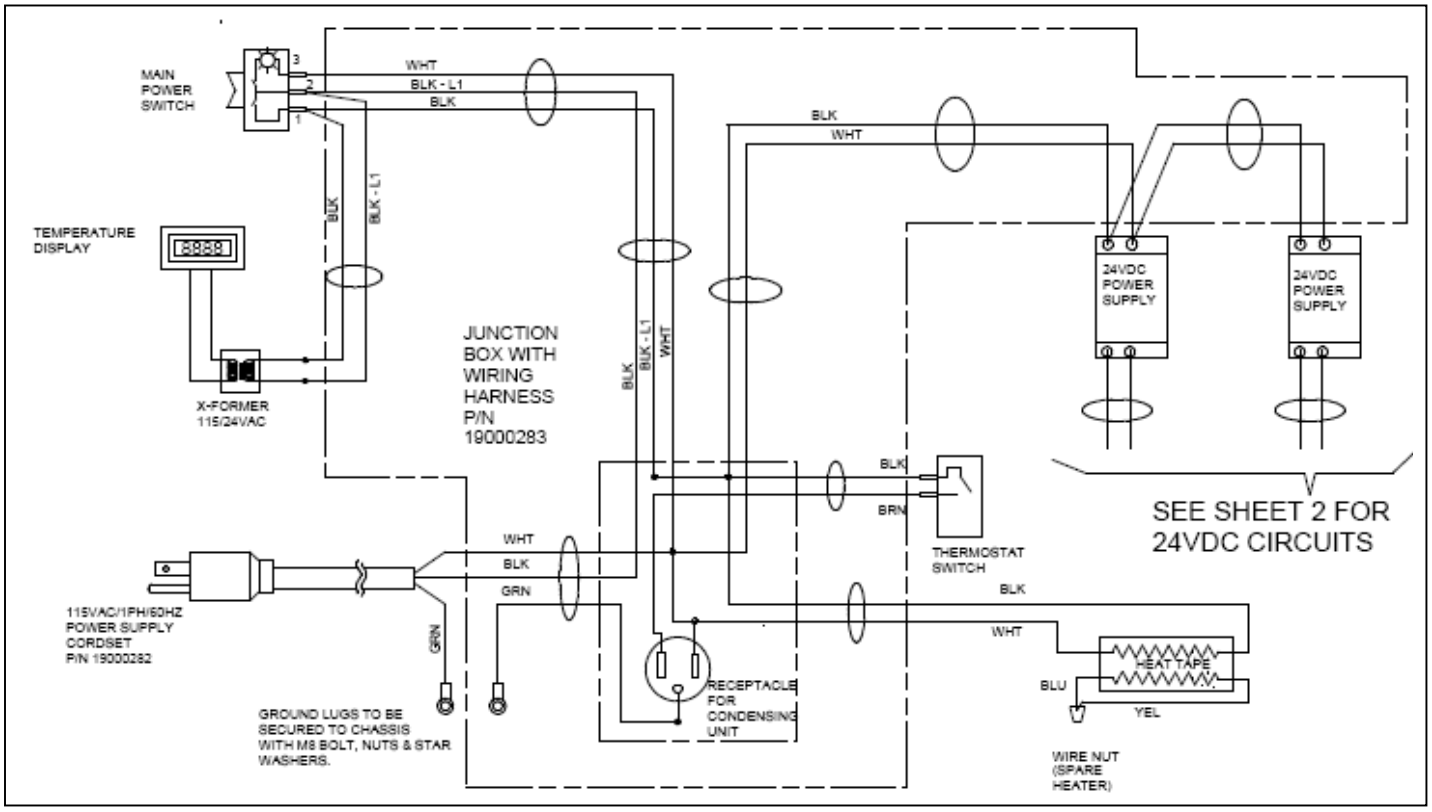
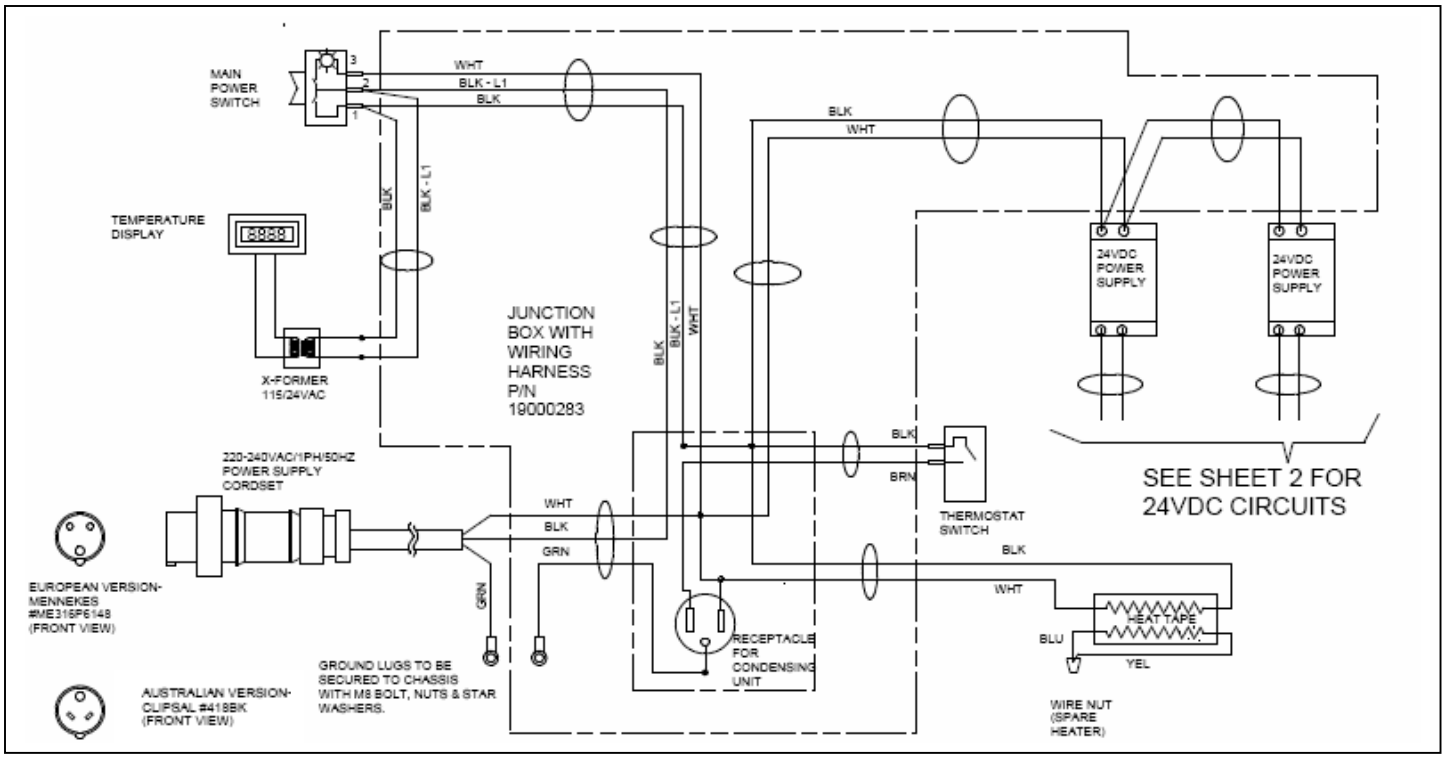
115-Volt, 1-Phase, 60 Hz Models



220-240-Volt, 50 Hz Models



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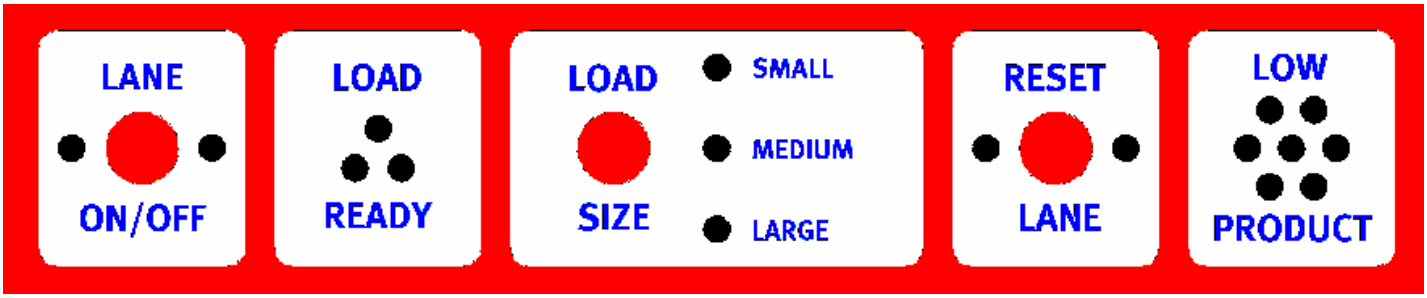
Control Panel Function Guide:



Each lane overlay has the following touch-pad controls and LED displays:

1. **LANE ON/OFF** – Turns the individual lane on and off. Press and Hold to activate. Do NOT turn lane ON until after the hopper is loaded with fries.

2. **LOAD READY** – Three green lights indicate that the lane is ready to dispense a load of fries.

3. **LOAD SIZE** – Indicates size of load of fries to be dispensed. Can only be changed when LOAD READY lights are illuminated. The default is LARGE (Load Size). Pressing LOAD SIZE touch-pad cycles from: LARGE to MEDIUM to SMALL, then back to LARGE.

4. **RESET LANE** – A fault condition has occurred.

    - ***Flashing lights*** – Time out error. The Hopper is either out of fries or a bridge has formed preventing fries from feeding. Correct condition and press RESET LANE button to resume normal operation.

    - ***Lights ON*** – Failure to tare error. Most likely a component assembly issue. Disassemble and reassemble that lane per Operating Manual or Dos & Don'ts Sheet instructions. Make sure all stray fries are cleaned out. Then press RESET LANE button to resume normal operation.

5. **LOW PRODUCT** – The fry level in the hopper is low and the hopper should be refilled. Approximately 1 bag of fries remains. Unit will continue to dispense fries.

2.1 An Introduction To F3D Service Manual

The Basics:

1) Technicians should be authorized to work on Franke Equipment and be qualified to diagnose and repair refrigeration equipment.
2) The F3D operates on 110-volt power and is provide with a grounded plug and 8' [2.4 meters] power cord.

> **WARNING:**
> Unplug unit from its110-volt power source whenever servicing electrical components or removing the rear service access panels. Failure to unplug unit may result in electric shock, burns or death.

3) The F3D refrigeration system is charged with ozone-safe R404A refrigerant. Only use R404A refrigerant when recharging this unit.
4) Always verify proper unit loose component assembly, proper unit cleaning and correct use of controls by unit operators, before replacing or repairing components.

Suggested [On-Truck] Repair Parts:

We suggest the following to ensure first-trip fix of the F3D:

Part No.	Description	Quantity
19000388	Freezer Door Gasket	1
19000161	Drum/Door Lift Rotor Motor	2
19000165	Load Cell	1
18000558	Door [Open] Motor	1
19000192	Door-Open Sensor	1
19000199	Touch Pad Control Module	1
3126151	Main Power Switch	1
19000154	LED Temperature Display & Sensor	1
3156	Siemens 24-Volt Power Supply	1
19000177	Main Control Board	2
18000795	Kit, Low Product Sensor	2
18000796	Kit, Basket Present Sensor	2
18000797	Kit, Drive Shaft Rotor Repair	2
18000798	Kit, Spring & Link Repair	2
18000799	Kit, Product Door (1-Side)	2
18000800	Kit, Product Baffle (6 Baffles)	2

When In Doubt:

Call Franke Technical Support at: **800 537-2653**

[Photo 1]

The F3D Unit Serial Number is located at the top of the Model Number & Data sticker, which is on the unit's left side, when facing unit.

@Tools Required:

[For Mechanical Systems Repair]

- 3/8" [10 mm] flat screw driver
- ¼" [6-7 mm] flat screw driver
- 1/16" [2 mm] flat screw driver
- 1/8" [3 mm] Allen/hex wrench
- 3/16" [5 mm] Allen/hex wrench
- 5/32" [4 mm] Allen/hex wrench
- 5 mm Allen/hex wrench
- 13 mm Allen/hex wrench
- 7/16" [11 mm] box/socket wrench
- Razor knife
- Needle nose pliers
- 'C' ring pliers
- Small wire cutters
- Rubber mallet
- Feeler or Gap Gauge
- Plastic Wire Ties

2.2 Freezer Door Gasket Replacement [Part No. 19000133]

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted before proceeding.
2) Open freezer door and inspect the one-piece magnetic door gasket. If the gasket is torn or crushed so that it doesn't completely seal around the door perimeter, it should be replaced.
3) Remove top door hinge using a 7/16" box wrench or socket, being careful not to drop the door. Place door on a non-mar surface with the gasket side facing up.
4) Carefully remove the one-piece gasket from the slotted plastic extrusion built into the back of the freezer door. [**Note**: Plastic extrusion can be easily damaged. Using a razor knife to separate the old gasket from its retaining tailpiece may facilitate this procedure. Carefully remove the separated tailpiece from the slot by pulling toward each corner using small needle nose pliers. See Photos 2 and 3]
5) Take the new gasket and insert the tailpiece into the gasket-mounting slot. Align the corners and start at the top of the door. Continue around the door perimeter until completely seated. [**Tip**: Place the door on a cushioned surface and carefully hammer the new gasket tailpiece into slot around the door perimeter.]
6) Re-install freezer door on bottom hinge with bushing, then mount the upper hinge. Be careful to align the door before tightening the hinge mounting bolts.

7) **Test** the replacement of the Freezer Door Gasket by:

8) Close the door and visually check the door seal and fit.
9) Turn on main power switch. Allow compressor to draw down Freezer Compartment temperature. Check with your hand around the full door perimeter for any leaks of cold air.

@Tools Required:
- Ø 7/16" [11 mm] socket wrench
- Ø Razor knife
- Ø Needle nose pliers
- Ø Rubber mallet

[Photo 1]

The F3D freezer door is equipped with a one-piece magnetic door seal.

[Photo 2]

To speed replacement, just cut away the old door gasket from its tail piece.

[Photo 3]

Use a needle nose pliers to pull gasket tailpiece from slot.

[Photo 4]

Align gasket tailpiece with door slot and hammer carefully into place around door perimeter.

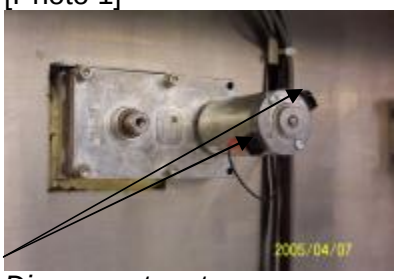
2.3 Drum Rotor Motor Replacement [Part No. 19000161]

1) Roll unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper and lower back service panels.
4) Disconnect both motor harness power connections.
5) Using a 5/32" [4 mm] Allen Wrench, remove the four motor mounting screws.
6) Remove motor by pulling straight out. Motor Rotor Block will remain in place.
7) Install new Drum Rotor Motor [P/N 19000161]. Ensure motor gear case drive shaft engages rectangular slot in plastic Rotor Drive Shaft.
8) Replace and tighten the four motor mounting screws using your 5/32" [4 mm] Allen Wrench.
9) Reattach power leads to motor: [Red = positive, Black = negative]
10) Reconnect unit to 110-volt power supply.

11) **Test** for proper motor operation by:
12) Turning ON main power switch & pressing LANE-ON touch pad on control overlay.
13) If LOAD READY light is on, position empty fry basket under hopper and activate loading cycle.
14) If Fry Hopper is empty, place screwdriver or knife in front of load sensor to trick the dispenser.
15) Position an empty fry basket in the fill chute.
16) If lane dispenses fries [if present] or if rotors turn smoothly in an attempt to dispense fries, the motor is working properly.

17) Close up rear service access panels and return F3D Dispenser to normal operating location.

[Photo 1]



Disconnect motor power leads.

[Photo 2]

Remove the four motor mounting screws.

@Tools Required:

- Ø 3/8" [10 mm] flat blade screw driver
- Ø 5/32" [4 mm] Allen Wrench

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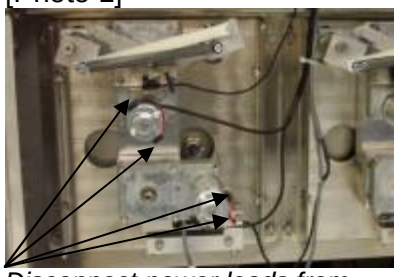
2.4 Automation Assembly Replacement [Part No. 18000567]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper and lower back service panels.
4) Disconnect motor harness power connections from both the Basket [Present] and Door Lift Motors.
5) Disconnect both Basket [Present] and Door Open Sensor leads at the Main Control Board.
6) Remove the Hoppers from the refrigeration compartment, the stainless steel loading chutes and plastic freezer bottom, to expose the product dispensing doors.
7) Remove [and save] the spring retaining clip from the left side Door Rotation Block Pin. [Slip round loop over pin then remove.] Release tension on the spring and allow it to hang from the right side spring mounting screw.
8) Rotate doors down to expose the shaft mounting screws on both doors.
9) Using a 1/8" [3 mm] Allen/hex wrench, remove the three screws that attach each door to its pivot shaft.
10) Slide the Door Frame off the left door shaft.
11) Remove the rubber seal and white hole cover from both Door Shafts.
12) Using a 7/16" [11 mm] box wrench or socket/wrench remove the four Automation Assembly mounting bolts from the side mounting channels.
13) Carefully remove the complete Automation Assembly, including door shafts, from the unit.
14) Install new Automation Assembly [P/N 18000567]. Replace and tighten the mounting bolts using your 7/16" [11 mm] wrench. [**Tip**: Don't fully tighten. Some mounting adjustment may be required. See Section 3.1]
15) Reinstall hole covers, gaskets, door frame and doors on door shafts. [**Tip**: See other Lane to verify assembly.]
16) Install freezer bottom for next adjustment.
17) Adjust Door Lift Assembly by minimal tightening of 7/16" [11 mm] bolts and then manually positioning the Door Lift Assembly front-to-back, so that the door frame is centered in the rectangular opening of freezer bottom.
18) With dispense doors in CLOSED position, adjust height of Door Lift Assembly so that dispense doors just "kiss" the freezer bottom to form a seal. [**Note**: Care should be taken to keep dispense doors level and centered in rectangular opening.] **[MORE…See 2.4 Continued]**

[Photo 1]



Disconnect power leads from both motors.

[Photo 2]

Disconnect sensor leads at the Main Control Board.

[Photo 3]

Open load doors from the front and remove three shaft-mounting screws on each.

[Photo 4]

Remove the four Automation Assembly mounting bolts.

2.4 Automation Assembly Replacement Continued: [Part No. 18000567]

@Tools Required:
- Ø 3/8” [10 mm] flat blade screw driver
- Ø 1/8” [3 mm] Allen Wrench
- Ø 7/16” [11 mm] box or socket wrench

19) Tighten all 7/16” [11 mm] bolts securely and recheck dispense door-to-bottom “kiss” seal for uniform fit.
20) Reattach power service wires to both motors [Red = positive, black = negative] and sensor leads to Main Control Board. [See other Lane to verify connections.]
21) Plug in unit power cord to 110-volt power supply.

22) **Test** Automation Assembly operation by:
23) Turning on main power switch & pressing LANE-ON touch pad on control overlay.
24) If LOAD READY light is on, position empty fry basket under hopper and activate fry loading cycle.
25) If Lane dispenses fries, it is working properly.

26) Close rear service access panels and return F3D Disperser to normal operating location.

2.4A Door Lift Slide Replacement [Part No. 18000558]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove lower back service panel.
4) Detach the Black and Red electric power connections from the Basket Lift and Door [Open] Motors.
5) Remove [and save] the spring retaining clip from the left side Door Rotation Block Pin. Slip round loop over pin then remove. Release tension on spring and allow it to hang from the right side spring mounting screw.
6) Remove the spring retaining clip from the right side of the white plastic Door Cam Link. Remove that link and the two small plastic shaft spacers.
7) From the front side rotate product doors down to expose the shaft mounting screws on both doors.
8) Using a 1/8" [3 mm] Allen/hex wrench, remove the three screws that attach each door to its pivot shaft.
9) Slide the Door Frame off the left door shaft.
10) Remove the rubber seal and white hole cover from both Door Shafts.
11) Using the 5/32" [4 mm] Allen/hex wrench, remove the four Door [Open] Motor mounting screws. Removing the two top screws will separate the Door Open Sensor & Bracket from the motor assembly. It can hang down from cable.
12) Using the 5/32" [4 mm] Allen/hex wrench, remove the four Door Lift Motor mounting screws. [This is the bottom motor.]
13) Carefully remove the motor and gearbox assembly from the machined aluminum Door Slide Lift Assembly.
14) Remove the Door Lift Shaft from the Slide Bearing Assembly.
15) Using a ¼" [6 mm] box wrench or socket, remove the four Door Lift Slide mounting bolts.
16) Pull Door Lift Slide sub-assembly [with shafts] out of cabinet and place on a convenient work surface.
17) Using a 'C' ring pliers, remove both retaining rings on the freezer side of each door mounting shaft. [Back retaining ring on each shaft should stay in place.]
18) Using a rubber mallet, tap door shafts out of Door Lift Slide bearings.
19) Take the replacement Door Lift Slide and use your rubber mallet to tap door shafts back into place.
20) Replace the two 'C' Rings on each shaft.
21) Reposition the sub-assembly back though the cabinet penetrations.

[Photo 1]

Remove the spring clip retainer from left side door rotation block pin, then relieve spring tension.

[Photo 2]

Remove the two upper motor mounting screws first.

[Photo 3]

Open load doors from the front and remove three shaft-mounting screws on each.

Ø

2.4A Door Lift Slide Replacement CONTINUED [Part No. 18000558]

22) Align the assembly and reinstall the four mounting bolts.
23) Reinstall hole covers, gaskets, door frame and doors on door shafts. [**Tip**: See other Lane to verify assembly.]
24) Install Door [Open] Motor assembly starting with the two bottom mounting screws. Remount Door Open Sensor & bracket using the two upper motor mount screws.
25) Reconnect the two motor electric power connections: [Red = positive; Black = negative].
26) Replace white plastic Door Cam Link, with Stop Screw to the right side. [Note: Make sure white plastic spacers are on both left and right cam pins, before replacing link.
27) Attach the spring retainer clip to right side Door Rotation Block pin.
28) Using both hands, extend spring eye to left side Door Rotation Block Pin. [**CAUTION**: Spring will be under tension and may snap back.] Plastic bushings must be installed in spring end loops, before mounting the spring.
29) Replace spring retaining clip and lock in place over pin.
30) Reposition the Door Lift Shaft in the Slide bearing Assembly.
31) Reinstall the Door Lift Motor Assembly [P/N 19000161]. Make sure the gear box output shaft fits into the slot in the lift cam.
32) Replace and tighten the four motor mounting screws using your 5/32" [4 mm] Allen wrench.
33) **IMPORTANT** - Check the gap or calibration of the load cell [weighs basket contents] under the motor by inserting a .015" [.38 mm] feeler or gap gauge between set post on left [open] side of load cell. [See Photo 3]
34) If load cell gap is larger or smaller than .015", carefully adjust gap set nut located below left side of load cell.
35) Attach power service wires to Door Lift Motor. [Red = positive, Black = negative]

Test the replacement Door Slide Lift as follows:

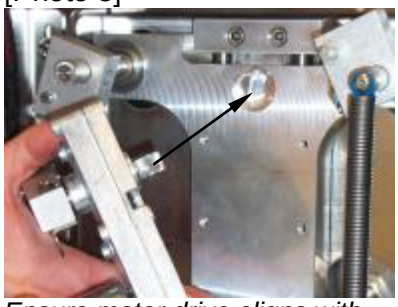
36) Plug in unit power cord to 110-volt power supply.
37) Turn on main power switch & pressing LANE-ON touch pad on front control overlay.
38) If LOAD READY light is on, position empty fry basket under Hopper to activate fry loading cycle.
39) If Lane properly dispenses fries, the Automation Assembly is working properly.

40) Close rear service access panel and return F3D Dispenser to normal operating location.

[Photo 4]

Remove the four motor mounting screws from the Door Lift Motor.

[Photo 5]



Ensure motor drive aligns with the slot in the slide plate counter bore.

[Photo 6]

After replacing this motor, check the gap on the load cell using a .015 [.38 mm] feeler or gap gauge.

2.5 Door Lift Motor Replacement [Part No. 19000161]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove lower back service panel.
4) Disconnect motor harness power connections from the [lower] Door Lift Motor.
5) Using a 5/32" [4 mm] Allen/hex wrench, remove the four motor mounting screws. [They are all the same length.]
6) Carefully remove the motor and gearbox assembly from the machined aluminum Slide Bearing Assembly.
7) Install the new Door Lift Motor Assembly [P/N 19000161]. Make sure the gear box output shaft fits into the slot in the lift cam.
8) Replace and tighten the four mounting screws using your 5/32" [4 mm] Allen wrench.
9) **IMPORTANT** - Check the gap or calibration of the load cell [weighs basket contents] under the motor by inserting a .015" [.38 mm] feeler or gap gauge between set post on left [open] side of load cell. [See Photo 3]
10) If load cell gap is larger or smaller than .015" [.38 mm], carefully adjust gap set nut located below left side of load cell.
11) Attach power service wires to new Door Lift Motor. [Red = positive, Black = negative]
12) Plug in unit power cord to 110-volt power supply.

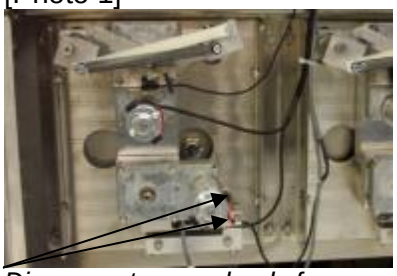
Test the replacement Door Lift Motor as follows:

13) Turn on main power switch & pressing LANE-ON touch pad on control overlay.
14) If LOAD READY light is on, position empty fry basket under hopper to activate fry loading cycle.
15) If Lane properly dispenses fries, it is working properly.

16) Close rear service access panels and return F3D Dispenser to normal operating location.

Ø

[Photo 1]



Disconnect power leads from [lower] Door Lift Motor.

[Photo 2]

Remove the four motor mounting screws.

[Photo 3]

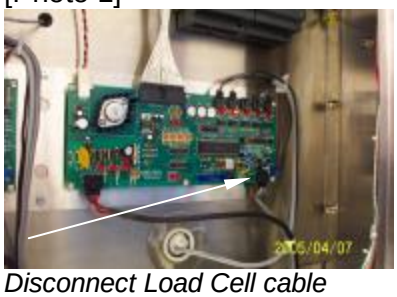
After replacing motor, check the gap on the load cell using a .015 feeler or gap gauge.

2.6 Load Cell Replacement [Part No. 19000165]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper and lower back service panels.
4) Disconnect Load Cell cable lead at Main Control Board. [See Photo 1]
5) Carefully snip wire harness ties to free cable all the way down to Load Cell.
6) Using a 3/16" [5 mm] Allen/hex wrench, remove the two Load Cell bracket screws and remove assembly.
7) Using a 5 mm Allen/hex wrench separate the Load Cell from its Mounting Bracket by removing the two right-side screws.
8) Re-attach the new Load Cell to the old Bracket with the mounting screw just removed.
9) Remount the Load Cell Assembly and tighten the two mounting screws using your 3/16" [5 mm] Allen wrench.
10) **IMPORTANT** – After installation, check the gap of the load cell [weighs basket contents] by inserting a .015" [.38 mm] feeler or gap gauge between set post on left [open] side of load cell. [See Photo 4]
11) If load cell gap is larger or smaller than .015", carefully adjust gap set nut located below left side of load cell.
12) Reroute Load Cell cable lead back up to the Main Control Board and re-attach terminal.
13) Re-bundle cable and wiring harness, using plastic ties as needed. [See other Lane wiring for best routing.]
14) Plug in unit power cord to 110-volt power supply.
15) **Test** the replacement of the Load Cell as follows:
16) Turn on main power switch & pressing LANE-ON touch pad on control overlay.
17) If LOAD READY light is on, position empty fry basket under hopper to activate fry loading cycle.
18) If Lane properly dispenses fries, it is working properly.
19) [NOTE: It may be necessary to recalibrate load cell using procedure provided with replacement unit.
20) Close rear service access panels and return F3D Dispenser to normal operating location.

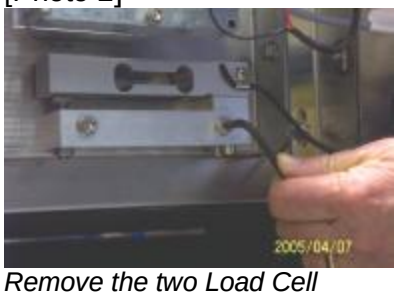
Ø

[Photo 1]



Disconnect Load Cell cable connector at Main Control Board.

[Photo 2]

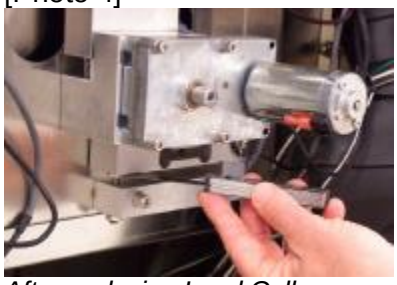


Remove the two Load Cell Bracket mounting screws.

[Photo 3]

Separate Load Cell from the mounting bracket by removing screw on right side of assembly.

[Photo 4]



After replacing Load Cell Assembly, check the gap on the load cell using a .015 [.38 mm] feeler or gap gauge.

2.7 Door [Open] Motor Replacement [Part No. 18000558]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove lower back service panel.
4) Remove [and save] the spring retaining clip from the left side Door Rotation Block Pin. Slip round loop over pin then remove. Release tension on spring and allow it to hang from the right side spring mounting screw.
5) Remove the spring retaining clip from the right side of the white plastic Door Cam Link. Remove that link. [You don't need to remove the small plastic shaft spacers.]
6) Using the 5/32" [4 mm] Allen/hex wrench, remove the four motor mounting screws, beginning with the two TOP screws.
7) Removing the longer top screws will separate the Door Open Sensor & Bracket from the motor assembly.
8) Detach the two motor electric power connections.
9) Install new motor assembly starting with the two bottom mounting screws.
10) Remount Door Open Sensor & bracket using the two upper motor mount screws.
11) Reconnect the two motor electric power connections: [Red = positive; Black = negative].
12) Replace white plastic Door Cam Link, with Stop Screw to the right side. [**Note**: Make sure white plastic spacers are on both left and right cam pins, before replacing link.]
13) Attach the spring retainer clip to right side Door Rotation Block pin.
14) Using both hands, extend spring eye to left side Door Rotation Block Pin. [**CAUTION**: Spring will be under tension and may snap back.] Plastic bushings must be installed in spring end loops, before mounting the spring.
15) Replace spring retaining clip and lock in place over pin.

Test the replacement Door [Open] Motor as follows:

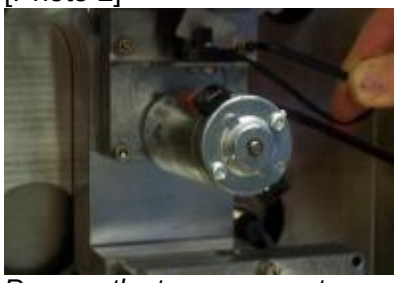
16) Plug in unit power cord to 110-volt power supply.
17) Turn on main power switch & pressing LANE-ON touch pad on front control overlay.
18) If LOAD READY light is on, position empty fry basket under Hopper to activate fry loading cycle.
19) If Lane properly dispenses fries, replacement Motor and dispensing assembly is working properly.

20) Close rear service access panel and return F3D Dispenser to normal operating location.

[Photo 1]

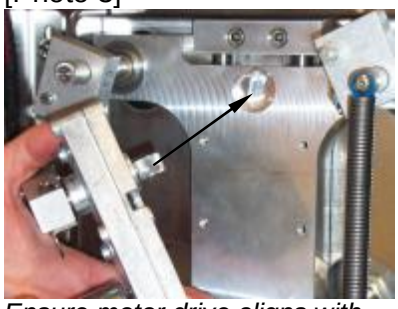
Remove the spring clip retainer from left side door rotation block pin, then relieve spring tension.

[Photo 2]



Remove the two upper motor mounting screws first.

[Photo 3]



Ensure motor drive aligns with the slot in the slide plate counter bore.

Ø

2.8 Door-Closing Spring Replacement [Part No. 19000213]

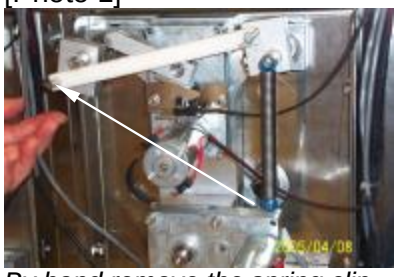
1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove lower back service panel.
4) Locate broken or weak/extended Door-Closing Spring.
5) Remove [and save] the spring retaining clip from the left side Door Rotation Block Pin. Slip round loop over pin then remove.
6) Remove and discard partial, extended or broken spring.
7) Using a 1/8" [3 mm] Allen wrench, remove the right side spring mounting screw and discard remainder of spring.
8) Install the new Door Spring [P/N 10999213] with plastic bushings in end loops by replacing right side retaining screw and tightening with 1/8" [3 mm] Allen wrench.
9) Using both hands, extend spring eye to left side Door Rotation Block Pin. [**CAUTION**: Spring will be under tension and may snap back.]
10) Replace spring retaining clip and lock in place over pin.

Test the replacement Door-Closing Spring as follows:

11) Remove Fry Hopper and Loading Chute from Lane.
12) Manually rotate product doors against spring tension. Ensure both doors open in unison and 90 degrees down to full open.
13) Reassemble loading chute and fry hopper, then close the freezer door.
14) Plug in unit power cord to 110-volt power supply.
15) Turn on main power switch & pressing LANE-ON touch pad on operator panel.
16) If LOAD READY light is on, position empty fry basket under Hopper to activate fry loading cycle.
17) If Lane properly dispenses fries, replacement spring is working properly.

18) Close rear service access panel and return F3D Dispenser to normal operating location.

[Photo 1]



By hand remove the spring clip retainer from left side door rotation block pin.

[Photo 2]

Use a 1/8" Allen Wrench to remove and later tighten right side spring retaining screw.

[Photo 3]

Test new spring by manually opening product doors against spring tension. Both doors should rotate down against resistance of the extension spring.

Ø

2.9 Low Product Sensor Replacement [Part No. 19000384]

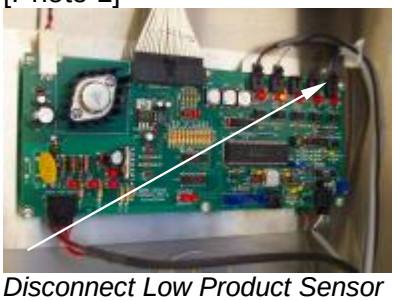
1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper back service panel.
4) Disconnect Low Product Sensor cable lead at Main Control Board. [See Photo 1]
5) Use a 'C' Ring pliers to remove the **inner** 'C' Ring retainer from the Low Product Sensor Sleeve.
6) The Low Product Sensor slides out of the outer sleeve but must be unscrewed counterclockwise to break the soft sealant at the front of the sensor from the outer sleeve. [Some early models have plastic threads which are very fine, so unscrewing those sensors will take some time.]
7) Take new Low Product Sensor [P/N 19000384] and apply a small amount of silicone sealant to the nose of the sensor then slide it back into the plastic sensor sleeve. [For models with internal threads in the plastic sleeve, screw sensor [clockwise] back into outer sleeve.
8) Re-insert the inner 'C' Ring.
9) Reattach the Low Product sensor cable lead to the Main Control Board terminal.
10) Plug in unit power cord to 110-volt power supply.

11) **Adjust Low Product Sensor Sensitivity** by:
12) Position an empty hopper in the freezer compartment.
13) Locate the small plastic plug near the LED indicator light on that sensor. Using a small 1/16" [2 mm] flat bladed screwdriver, remove the plastic plug. [See Photo 3]
14) Using that same screwdriver, slowly turn the brass adjustment screw clockwise until the LED light comes **ON**, then back that screw counterclockwise until the LED light just goes **OFF**.

15) **Test** the Low Product Sensor by:
16) Fill the Lane Hopper with Fries to a level above the Low Product Sensor. Switch ON main power on front panel. Press and turn ON Lane at front Control Panel. If LOW PRODUCT light comes on, repeat Sensor sensitivity adjustment described in Step 14.
17) If this sensor adjustment corrects problem, replace small plastic plug in back of Low Product Sensor.

18) Close rear service access panels and return F3D Dispenser to normal operating location.

[Photo 1]



Disconnect Low Product Sensor cable connector at Main Control Board.

[Photo 2]

Remove the inner 'C' Ring retainer and screw out the sensor.

[Photo 3]

After removing the small plastic plug, a 1/16" screwdriver is inserted to adjust sensor sensitivity.

Ø

2.10 Basket-Present Sensor Replacement [Part No. 19000182]

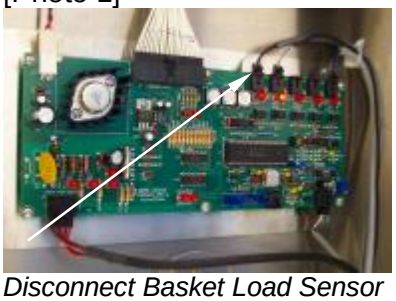
1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper and lower back service panels.
4) Disconnect Basket-Present Sensor cable lead at Main Control Board. [See Photo 1]
5) Carefully snip wire harness ties to free cable all the way down to the sensor.
6) Using a crescent wrench or 1" [25 mm] box wrench, unscrew the sensor-retaining nut from the Basket-Present Sensor Sleeve. [See Photo 2]
7) The Basket-Present Sensor must be unscrewed counterclockwise from the outer sleeve. [The plastic threads are fine so this will take some time.]
8) Take the new Basket-Present Sensor [P/N 19000182] and screw [clockwise] back into plastic sensor sleeve, until fully seated.
9) Replace the sensor-retaining nut and tighten with wrench.
10) Reattach the Basket-Present Sensor cable lead to the Main Control Board terminal. [See Photo 1]
11) Re-bundle cable and wiring harness, using plastic ties as needed. [See other Lane wiring for best routing.]
12) Plug in unit power cord to 110-volt power supply.

Test the new Basket-Present Sensor by:

13) Filling the Lane Hopper with Fries to a level past the Low Product Sensor. Switch ON main power on front panel. Press and turn ON Lane at the front Control Panel.
14) When LOAD READY light comes ON, insert empty fry basket into loading position. If fries are dispensed, Basket-Present Sensor is functioning properly.
15) NOTE: A green indicator on the back of the sensor comes on when it senses the basket.

16) Close rear service access panels and return F3D Dispenser to normal operating location.

[Photo 1]



Disconnect Basket Load Sensor cable connector at Main Control Board.

[Photo 2]

Remove sensor-retaining nut with wrench and screw out the basket sensor.

Ø

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2.11 Door-Open Sensor Replacement [Part No. 19000192]

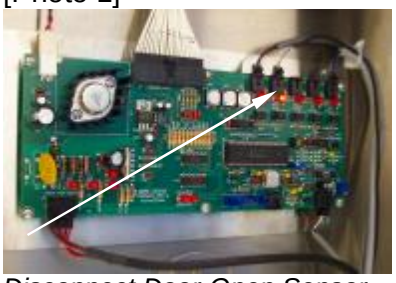
1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove upper and lower back service panels.
4) Disconnect Door-Open Sensor cable lead at Main Control Board. [See Photo 1]
5) Carefully snip wire harness ties to free cable all the way down to the sensor.
6) Using the 5/32" [4 mm] Allen/hex wrench, remove the top two [Door Open] motor mounting screws only.
7) Remove the Door Open Sensor & Bracket from the motor assembly. Slide the sensor bracket to the right, clearing the sensor flag or fin. Unscrew sensor mounting screws to remove sensor from bracket.
8) Position new Door Open Sensor [P/N 19000192] on the mounting bracket and attach using the two screws just removed.
9) Position new sensor and bracket over motor mounting holes. Ensure actuating flag is spaced midway within sensor slot.
10) Replace and tighten the two upper motor mounting screws using the 5/32" [4 mm] Allen/hex wrench.
11) Reattach the Low Product Sensor cable lead to the Main Control Board terminal. [See Photo 1]
12) Re-bundle and secure the cable and wiring harness, using plastic ties as needed. [See other Lane wiring for best routing.]

Test the replacement Door-Open Sensor as follows:

13) Plug in unit power cord to 110-volt power supply.
14) Turn on main power switch & pressing LANE-ON touch pad on front control overlay.
15) If LOAD READY light is on, position empty fry basket under Hopper to activate fry loading cycle.
16) If Lane properly dispenses fries, replacement Door-Open Sensor and dispensing assembly is working properly.

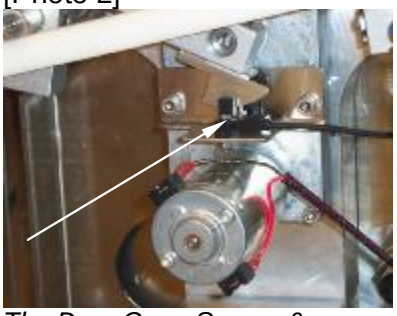
17) Close rear service access panels and return F3D Dispenser to normal operating location.

[Photo 1]



Disconnect Door-Open Sensor cable at Main Control Board.

[Photo 2]



The Door Open Sensor & Bracket is mounted with the upper [Basket Lift] motor mounting screws.

[Photo 3]

Use 5/32" Allen/hex wrench to remove and tighten mounting screws.

Ø

2.12 Touch Pad Controls Replacement [Part No. 19000199]

1) Disconnect power at outlet. [Pull 110-Volt plug.]
2) Position a step ladder or stable work platform to access the top of the F3D Control Panel.
3) Remove the five control panel mounting screws, one from each side and three on the top.
4) Carefully remove the black control panel assembly. It will remain attached to the unit with control wiring ribbon and cable wiring harnesses.
5) Remover the six backing plate mounting nuts from the Lane Operator Panel Display that requires replacement.
6) Carefully disconnect the flat ribbon harness terminal for that touch pad assembly.
7) Reattach the ribbon harness terminal to the replacement Operator Panel Control Assembly [P/N 19000199].
8) Position the touch panel controls in the opening of the front control panel frame.
9) Replace the backing plate using the six mounting nuts just removed.
10) Return the control panel assembly to the mounting position and install the six screws.
11) Plug in unit power cord to 110-volt power supply.

Test the new Lane Touch Pad Controls Assembly by:

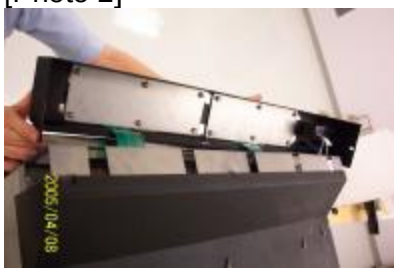
12) Filling the Lane Hopper with Fries to a level past the Low Product Sensor.
13) Switch ON main power switch on the front control panel.
14) Press and turn ON Lane at the front control panel.
15) When LOAD READY light comes ON, test operation of Load Size touch pad by cycling through: SMALL, MEDIUM and LARGE settings.
16) Insert empty fry basket into loading position. If fries are properly dispensed, Lane Touch Pad Controls are functioning properly.

17) Return F3D Dispenser to normal operating location.

[Photo 1]

Lane Operator Panel Controls

[Photo 2]



Remove the five front panel mounting nuts to access the Touch Pad Control Assemblies.

[Photo 3]

Note position of Pin No.1, then disconnect ribbon harness terminal connection.

Ø

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2.13 Main Power ON/OFF Switch Replacement [Part No. 3126151]

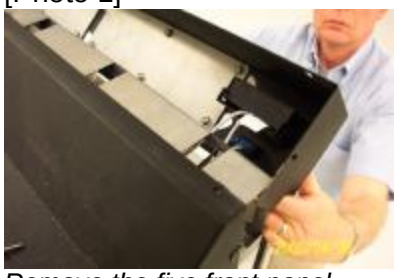
1) Disconnect power at outlet. [Pull 110-Volt plug.]
2) Position a stepladder or stable work platform to access the top of the F3D Control Panel.
3) Remove the five control panel mounting screws, one from each side and three located on the top.
4) Carefully remove the black control panel cover assembly. It will remain attached to the unit with control wiring ribbon and cable wiring harnesses.
5) Remove the three terminal connections from the Power ON/OFF Switch.
6) From the back carefully depress the plastic locking tabs on either side of the switch and push the switch out through the panel front.
7) Take the new Power ON/OFF Switch [P/N: 3126151] and push it through the front panel opening until the side tabs lock it in place. Switch bezel should be flush with front panel.
8) Reconnect the three switch wires. When viewed from back of switch, the wires are connected: T1 = Brown, T2 (center) = Black (L1), T3 = White (Neutral).
9) Return the control panel assembly to the mounting position and install the five mounting screws.
10) Plug in unit power cord to 110-volt power supply.

Test the new Power ON/OFF Switch by:

11) Switch on Main Power Switch at the front control panel. Integrated [red] pilot light should come on and you should hear the compressor come on, after a short delay.
12) Press the ON Lane touch pad for both Lanes. If both Lane ON lights come on, the Main Power Switch is functioning properly.

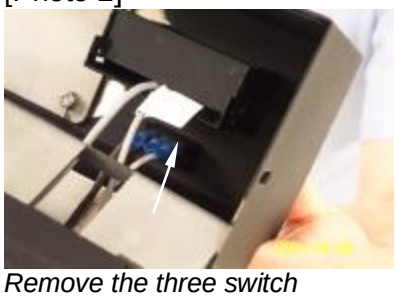
13) Return F3D Dispenser to normal operating location, if it was moved.

[Photo 1]



Remove the five front panel mounting screws to access the front control assemblies.

[Photo 2]



Remove the three switch terminal leads, depress plastic locking tabs and push out Power ON/OFF switch.

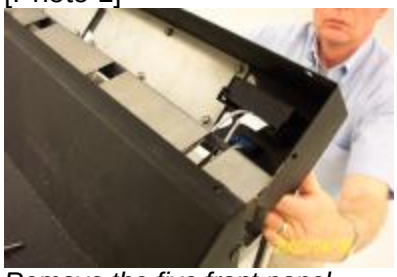
2.14 LED Unit Temperature Display Replacement [Part No. 19000154]

1) Disconnect power at outlet. [Pull 110-Volt plug.]
2) Position a stepladder or stable work platform to access the top of the F3D Control Panel.
3) Remove the five control panel mounting screws, one from each side and three located on the top.
4) Carefully remove the black control panel cover assembly. It will remain attached to the unit with control wiring ribbon and cable wiring harnesses.
5) Disconnect the black and white LED Display leads from the 24-volt DC transformer, which is mounted behind the panel. [Note polarity of wires before disconnecting.]
6) Remove both hopper/drum assemblies from freezer.
7) From inside freezer, cut the plastic ties that hold the temperature display sensor on the center hopper support and push wire and sensor thru the hole in back liner of freezer. [See Photo 3]
8) Remove the upper back service access panel.
9) Pull temperature sensor out back side of freezer and free sensor cable from any cable assembly tie-downs.
10) From the back of the control panel, carefully depress the locking tabs on either side of the LED Display module and pull the module free from the panel front. Pull the Sensor and cable through the display opening, as part of the removal operation.
11) Take the new LED Temperature Display [P/N: 19000154] and insert its wiring and sensor into the front panel then insert the Display itself into that opening until the side tabs lock it in place.
12) Reconnect the black and white LED wires to the 24-volt power transformer.
13) Reinstall temperature sensor thru back wall of freezer and secure it to the hopper center support bracket with plastic harness ties. Re-bundle harness as needed.
14) Return the control panel assembly to the mounting position and install the five mounting screws.
15) Plug in unit power cord to 110-volt power supply.

Test the new LED Temperature Display by:

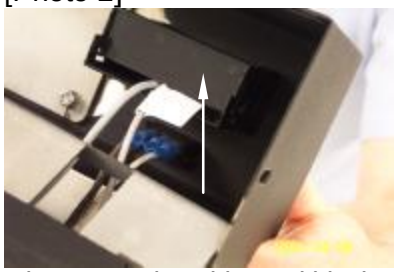
16) Switch on Main Power Switch at the front control panel.
17) The temperature display should show the current freezer compartment temperature and track the pull-down to a safe operating temperature range of 0 to -10° F [-18 to -23° C].
18) Return F3D Dispenser to normal operating location, if it was moved.

[Photo 1]



Remove the five front panel mounting screws to access the front control assemblies.

[Photo 2]



Disconnect the white and black leads at the 24-volt transformer mounted behind the front panel and remove the LED Display Module.

[Photo 3]

Cut plastic retainers on the compartment temperature sensor and push it through hole in back of freezer.

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2.15 24-Volt Power Supply Replacement [Part No. 3156 (Siemens)]

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove the upper back service panel.
4) Locate the two DIN rail mounted 24-volt power supplies, one for each dispenser Lane. [Left power supply serves the left Lane, etc.]
5) Disconnect the white and black 110-volt wires that come into the power supply from the top. Use a small screwdriver to disconnect wires.
6) Disconnect the 24-volt braided lead at the Main control board. [See Photo 2] Using the small screw driver disconnect the red and black leads from 24-volt power supply.
7) Using a ¼" [6-7 mm] flat blade screwdriver, depress or lever downward the plastic release tab, which is located below and in the center of the power supply case. This will release power supply from the bottom of DIN rail and allow you to remove the power supply. [See Photo 3]
8) Take new 24-volt power supply [P/N: 3156] and position rear slot over upper edge of DIN rail and snap it down and into place. Make sure it is firmly seated.
9) Reconnect red and black leads on braided harness to the new power supply. Red = positive, Black = negative.
10) Plug 24-volt braided lead back into the Main Control Board. [See Photo 2.]
11) Reconnect 110-volt black and white wires to the top of the transformer. [Black wire = L, White wire = N]
12) Plug in unit power cord to 110-volt power supply.

Test the new 24-volt Power Supply by:

13) Switch ON Main Power Switch at the front control panel.
14) A small green LED will light on the power supply, indicating it is functioning properly. [You will also hear the compressor come on to begin freezer compartment chilling.]

15) Close rear service access panel and return F3D Dispenser to normal operating location.

Ø

[Photo 1]

Two 24-volt Power Supplies are DIN rail mounted. Note separate routing of 110-volt and 24-volt wiring.

[Photo 2]

Disconnect 24-volt power lead at Main Control Panel.

[Photo 3]

Using a flat blade screwdriver to depress the tab below the power supply bottom case, to release it from DIN mounting rail.

2.16 Main Control Board Replacement [Part No. 19000177]

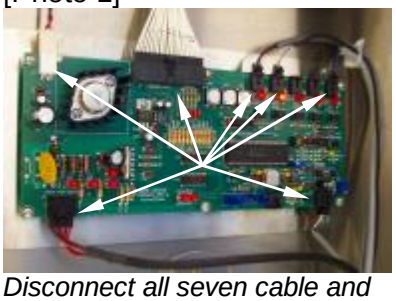
1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove the upper back service panel.
4) Locate the Main Control Panel for the Lane that requires replacement.
5) Disconnect the seven terminal connectors that plug into the Main Control Panel, to include:
   - Ø Ribbon harness from Controls Touch Pad
   - Ø Cable connector from Basket Load Sensor
   - Ø Cable connector from Door-Open Sensor
   - Ø Cable connector from Low Product Sensor
   - Ø Cable connector from Load Cell
   - Ø Harness connector to three Motors
   - Ø Braided Lead from 24-volt Power Supply
6) Using a 1/8" [3 mm] Allen/hex wrench, remove the six board mounting screws.
7) Take new Main Control Panel [P/N: 19000177] from its protective package and position and align with mounting holes.
8) Using the 1/8" [3 mm] Allen/hex wrench, replace the six board mounting screws. DO NOT OVERTIGHTEN!
9) Replace all seven harness and cable connections. Make sure terminals are fully engaged.
10) Plug in unit power cord to 110-volt power supply.

> **Note**: Load Cell Calibration is required when the Main Control Board is replaced. **See Section 3.7 for calibration instructions**. Also see Section 3.4 for adjusting standard load sizes, if this is required.

Test the new Main Control Board by:

11) Switch ON Main Power Switch at the front control panel.
12) Press LANE-ON touch pad for that Lane.
13) If LOAD READY light comes on, position empty fry basket under Hopper in basket guide, to activate the fry load cycle.
14) If Lane properly dispenses fries, it is working properly.
15) Close rear service access panel and return F3D Dispenser to normal operating location.

[Photo 1]



Disconnect all seven cable and harness connections from Main Control Board.

[Photo 2]

The sensor cable connections used are labeled: BASKET, DOOR OPEN & LOW PRODUCT, from left-to-right.

Ø

2.17 Hopper Rotor Replacement [Part No. 19000246]

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted before proceeding.
2) Open freezer door and remove the Hopper in Question. Place it on its side, with the rectangular opening for rotor facing up.
3) Inspect rotor for damage or excessive wear. If the rotor does not turn easily by hand, it may need to be replaced.
4) The rotor front can be identified by the manual rotor handle molded into the rotation axle. The back support axle doesn't have this handle.
5) Remove the old rotor by gently prying out the plastic Hopper side closest to the manual rotation handle. When that handle clears the hole in the Hopper, pry out the rear side of hopper so that hub clears that hole. Pull up and carefully remove the rotor from the hopper.
6) Install the new Rotor by reversing this process. Make sure the rotor end with the manual rotation handle faces the front of the Fry Hopper.

7) **Test** the replacement Rotors by:
8) Manually turn or spin the Rotor Handle. The rotor should revolve easily, with little resistance.

9) Replace the Hopper in the freezer compartment and return the unit to service.

[Photo 1]

A finned rotor is mounted in each Hopper to gently move frozen fries to the Product Chute.

[Photo 2]

When removing the Rotor, use a large screwdriver or pry bar to gently lever the sides of the Hopper enough free to the rotor.

Ø

2.18 Main Control Board Chip Replacement [Part No. 18000812]

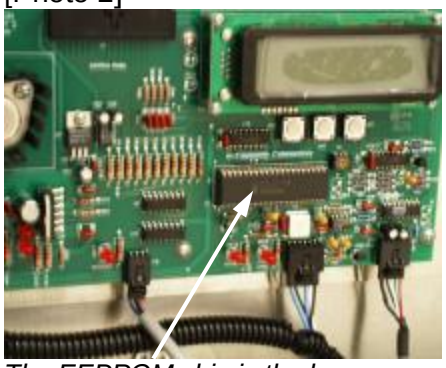
1) Turn the individual lanes OFF by pressing and holding the individual LANE ON/OFF button until the LANE ON/OFF light goes out.
2) Pull the dispenser away from the wall so you can easily access the rear of the unit.
3) Disconnect power at outlet. [Pull 110-Volt plug.]
4) Remove the upper rear panel on the rear of the unit.
5) Locate the (2) circuit boards and the EEPROM chip located on each board. (These are the chips to be replaced.)
6) Carefully insert the small screwdriver (included) between the chip and the saddle as shown in Photo 3. Be careful NOT to insert the screwdriver below the saddle.
7) Gently pry the chip out of the saddle, being careful not to damage any other components on the circuit board.
8) Once the chip is nearly unseated, it can be pulled straight out using your hand. You can now see the chip saddle still in place on the circuit board.
9) Carefully remove one replacement chip from it's packaging. It is important that static electricity be avoided while handling the chip. Please use proper precautions.
10) **Note:** Be careful not to install the chip upside down. The semi-circular notch on one end of the chip should align with the similar notch on the left side of the saddle.
11) With the notch on the chip to the left, matching the notch on the saddle. Carefully insert the chip into the saddle. It is recommended that the lower set of pins be aligned with the lower set of slots, then the upper set of pins aligned with the upper set of slots on the saddle. Then carefully press the chip into place until it is fully seated. Apply light pressure all along the chip to make sure that all pins are fully inserted into their corresponding slot.
12) With the chip(s) changed, the dispenser is now ready to be calibrated. Please refer to Section 3.7 for instructions on how to calibrate the dispenser. Do not yet reinstall the access panel. It must be off to calibrate.

[See additional detailed photos on page 2.]

[Photo 1]

Remove one screw to remove the rear, top service access panel.

[Photo 2]



The EEPROM chip is the large chip below the LCD Display.

[Photo 3]

Carefully insert the small screwdriver between the chip and the saddle at the small notch on the left side.

@ Tools Required

- 3/8" [10 mm] flat blade screw driver
- Small Chip-Replacement screw driver (Provided)

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Main Control Board Chip Replacement Photos Continued… [Part No. 18000812]

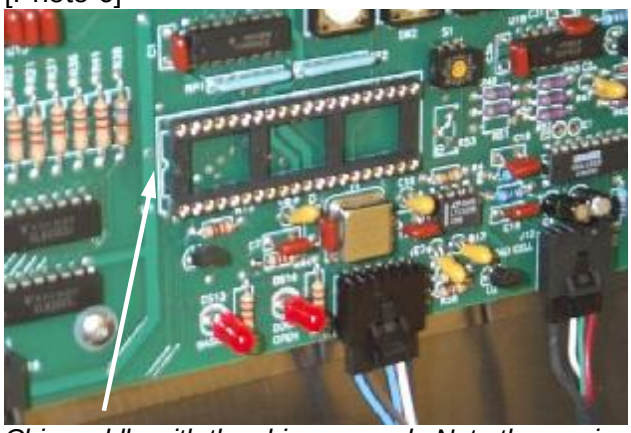
[Photo 4]

Gently pry the chip from the saddle.

[Photo 5]

Once the chip is loose, it can be pulled straight out.

[Photo 6]

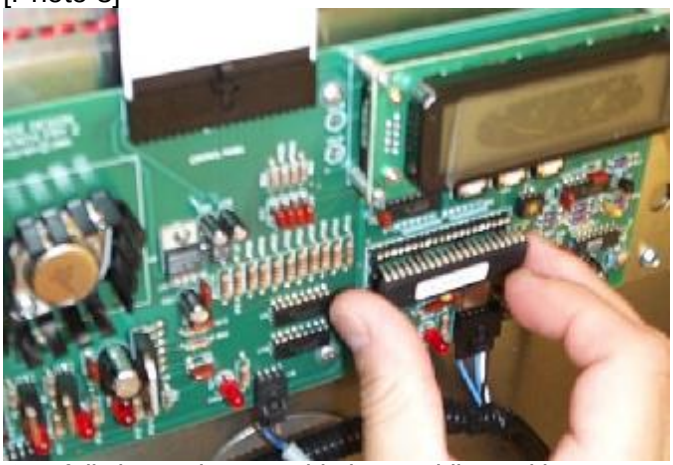


Chip saddle with the chip removed. Note the semi-circular notch on the left aligns with a similar notch on the chip.

[Photo 7]

Note semi-circular notch on one end of chip. This must align with the notch on the saddle. (The notch is not white – it is shown white for illustration purposes.)

[Photo 8]



Carefully insert the new chip into saddle, making sure that notches align and that all pins align with corresponding slots.

3.1 Low Product Sensor Adjustment [Part No. 19000181]

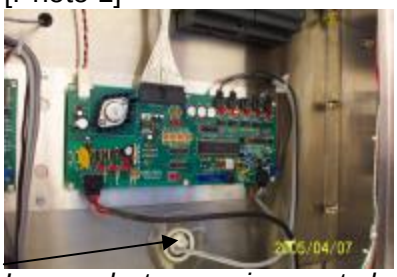
Problem: False LOW PRODUCT Light indication on Lane Control Panel, when product is present. [First, ensure product is present and there isn't a bridge or void in Hopper near the sensor.]

1) Thoroughly wash hands. With a clean hand, scoop fries completely away from the Low Product Sensor. (You may have to remove some fries to get the bin level close to, or below, the sensor.)
2) Roll the unit out to allow access to rear service panels.
3) Leave unit connected to power source. Adjustments will be made to 24-Volt control system only.
4) Remove the upper service panel only.
5) Locate the Low Product Sensor mounted through the refrigeration compartment wall just below the Main Control Board.
6) Locate the small plastic plug near the LED indicator light on that sensor. Using a small 1/16" [2 mm] flat bladed screwdriver, remove the plastic plug.
7) Using that same screwdriver, slowly turn the brass adjustment screw clockwise until the LED light comes **ON**, then back that screw counterclockwise until the LED light goes **OFF**.

8) **Test** Low Product Sensor Sensitivity as follows:
9) Check Front Panel LOW PRODUCT warning light. Light should still be ON.
10) With a clean hand, scoop fries so that they surround the sensor (adding fries to hopper if necessary). As you do so, the LOW PRODUCT light should turn off. Scoop the fries away, and the light should come back ON. If the LOW PRODUCT light stays on, turn the sensor adjustment screw slightly counterclockwise, and test again. Repeat adjustment until the LOW PRODUCT light turns on and off correctly.
11) If repeated attempts to adjust Low Product Sensor fail to correct problem, see Part Replacement Section 2.9 and replace faulty or suspect sensor.
12) If sensor adjustment corrects problem, replace small plastic plug in back of Low Product Sensor.

13) Replace upper rear service access panel and return F3D Dispenser to normal operating location.

[Photo 1]



Low product sensor is mounted below the Main Control Board.

[Photo 2]

After removing the small plastic plug, a 1/16" [2 mm] screwdriver is inserted to adjust sensitivity.

@Tools Required:

- 3/8" [10 mm] flat blade screw driver
- 1/16" [2 mm] flat blade screw driver

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3.2 Reverse Door Hinges/Door Swing

Problem: The F3D ships from the factory hinged right, so the freezer door opens and swings right. This configuration works best when the F3D is positioned to the right of the fryer battery. If the unit is to be positioned to the left of the fryers, the door hinges should be reversed, so it opens left.

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted before proceeding.
2) Open the freezer door to access upper and lower mounting hinge brackets.
3) Using a 7/16" [11 mm] wrench or socket, loosen and remove the two upper hinge bracket-mounting bolts, while supporting the weight of the door. [**Tip**: If a second person is available, have them support the weight of the freezer door while you remove hinge brackets.]
4) Remove upper hinge bracket from the door bushing.
5) Lift the door up and off the lower hinge pin and set it aside, without scratching the door panel finish.
6) Remove the two mounting bolts from the lower hinge bracket and set it aside.
7) Locate the mirror image bracket mounting holes on the left side of the freezer cabinet frame.
8) Take the upper hinge-mounting bracket and reinstall it in the lower hinge position with the hinge pin up, using the same two mounting bolts.
9) Rotate the Freezer Door 180 degrees and place what was the upper hinge bushing on the lower hinge mounting bracket pin.
10) Position the remaining [former lower] hinge mounting bracket with the pin in the [now] upper door hinge bushing and secure that bracket with the two remaining mounting bolts.

11) **Test** the function and alignment of the door. Door should open and close freely and seal completely against the freezer compartment front frame.

Ø

[Photo 1]

Most F3D units ship from factory with freezer door hinged right, to open and swing to the right.

[Photo 2]

Remove mounting bolts from the upper hinge-mounting bracket and lift door off lower hinge pin.

[Photo 3]

Rotate door 180 degrees and reverse hinges for left side mounting.

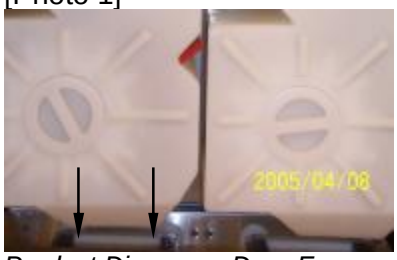
3.3 Adjusting Automation Assy. Alignment

Problem: Product Dispenser Door Frame does not align with or seal against rectangular opening in the freezer compartment bottom.

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted before proceeding.
2) If not already removed, open freezer compartment door and remove the Lane Fry Hopper and Loading Chute in question.
3) Roll the unit out to allow access to rear service panels.
4) Disconnect power at outlet. [Pull 110-Volt plug.]
5) Remove the lower back service access panel.
6) Using a 7/16" [11 mm] box wrench, barely loosen all eight Automation Assembly mounting bolts. This assembly attaches to the rear frame with right and left 'L' channels.
7) The bolt holes in the 'L' channels are all slotted, to provide in-out or up-down adjustment of the Automation Assembly.
8) Minimally tighten the four channel-to-Automation Assembly bolts and manually position and level assembly front-to-back, so the product loading door frame is centered in freezer bottom opening. [**Note**: Check this alignment from front of unit.]
9) Minimally tighten the four 'L' channel-to-rear-frame mounting bolts and adjust height of the Automation Assembly so that the dispenser doors just "kiss" the freezer bottom. [Check this alignment from front of unit.]
10) Tighten all eight 7/16" [11 mm] bolts securely and recheck dispense door-to-freezer bottom seal and fit. If further adjustment is required, repeat steps 6 thru 10.

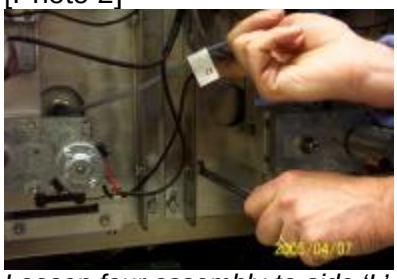
11) Close rear service access panel.
12) Move unit back into position.
13) Re-install Loading Chute and Lane Fry Hopper.
14) Plug in unit power cord to 110-volt power supply.
15) Turn ON main power switch and press both Lane-ON touch pads on front control overlays.
16) When LOAD READY light is on, position an empty fry basket under Hopper to verify operator is satisfied with results of this adjustment procedure.

[Photo 1]



Product Dispenser Door Frame must be centered in and seal against plastic freezer bottom.

[Photo 2]



Loosen four assembly-to-side 'L' channel mounting bolts to adjust front-to-back position and level of door frame.

[Photo 3]

Loosen four 'L' channel-to-frame mounting bolts to adjust height and seal of Door Lift Assembly.

Ø

3.4 Adjusting "Standard" Load Sizes

Problem: The F3D ships from factory with load size set at McDonald's Operational Standards of: LARGE = 1-1/2 pounds [680 gm]; MEDIUM = 1-pound [460 gm]; SMALL = 3/4-pound [340 gm] of frozen MAC FRIES. Operator wants to change standard load setting, most typically to increase dispensed load.

1) Roll the unit out to allow access to rear service panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Remove the upper back service access panel.
4) Go to Main Control Boards and locate the black load size adjustment control marked 'S1'. It is located at he upper right corner of the largest Process Controller.
5) Using a 1/16" [2 mm] flat screwdriver, **increase load size** [½ ounce (14 gm) per click] by turning adjustment screw clockwise. **To decrease load** size turn adjustment screw [½ ounce (14 gm) per click] counterclockwise.
6) **Note**: making this adjustment increases or decreases the load size for all three control panel settings: LARGE, MEDIUM and SMALL by the same amount.

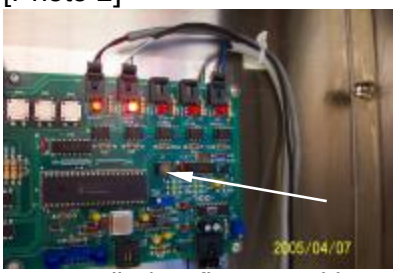
> **For Example**: If the operator wants to increase the standard dispensed load size by 3 ounces [85 gm], turn the adjustment screw six discrete clicks clockwise.

7) Make this same adjustment for BOTH dispensing Lanes.
8) Close rear service access panel.
9) Plug in unit power cord to 110-volt power supply.
10) Turn ON main power switch and press both Lane-ON touch pads on front control overlays.
11) When LOAD READY light is on, position an empty fry basket under Hopper to verify operator is satisfied with resulting dispensed fry volume or basket load.
[**Note**: First basket load from each lane may have been weighed before setting change took effect. Do not judge new weight setting by first loads from either Lane.]
12) **Tip**: It is suggested that the operator use a small scale to determine average weight of 5 or 10 basket loads from each lane, to improve accuracy of measured weights.

[Photo 1]

There are two Main Control Boards, one for each Lane.

[Photo 2]



Use small 1/16" flat screwdriver to adjust load size. Turn clockwise to increase load size, counterclockwise to decrease load size.

Ø

3.5 Drum Rotor Motor Adjustment

Problem: The operator reports that the F3D makes an intermittent [in-and-out] grinding or scraping noise when dispensing fries. The Drum Rotor, Rotor Drive Shaft or Rotor Motor may be out of alignment.

1) Determine which Lane is making the noise.
2) Remove the Hopper only from the Lane in question.
3) Using a metal object to fool the Low Product Sensor and activate a fill cycle on that Lane. Observe and listen to the operation of the Drum Rotor.
4) Replace Hopper in that Lane and check hopper hanger alignment. If OK, proceed to Step 5. If out of alignment, see Section 3.6.
5) Roll unit out to allow access to rear service panels.
6) Disconnect power at outlet. [Pull 110-Volt plug]
7) Remove upper back service panel.
8) Using a 5/32" [4 mm] Allen Wrench, loosen the four Drum Rotor Motor mounting screws.
9) Shift position of motor right, left, up or down as needed, to better seat motor gear box shaft in plastic Rotor Drive Shaft, then retighten motor mounting screws. [You may need to repeat this adjustment process to ensure good alignment.]
10) Reconnect unit to 110-volt power supply.

Test for normal rotor/motor operation by:

11) Turning ON main power switch & pressing LANE-ON touch pad on control overlay.
12) If LOAD READY light is on, position empty fry basket under hopper and activate loading cycle.
13) If Fry Hopper is empty, place screwdriver or knife in front of load sensor to trick the dispenser.
14) Position an empty fry basket in the fill chute.
15) If Lane dispenses fries [if present] or if rotor turns smoothly with out grinding, the unit is working properly.

16) Close up rear service access panel and return F3D Dispenser to normal operating location.

[Photo 1]

Check alignment of hopper. Adjust hopper hanger brackets as needed.

[Photo 2]

Loosen the four motor mounting screws, adjust and tighten to improve alignment with rotor drive shaft.

@Tools Required:

- 3/8" [10 mm] flat blade screw driver
- 5/32" [4 mm] Allen Wrench

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3.6 Fry Hopper Hanger Alignment

Problem: Operators are having trouble installing or aligning hoppers after removing them for daily cleaning.

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted before proceeding.
2) If not already removed, open freezer compartment door and remove both Lane Fry Hoppers.
3) Using a 13 mm Allen/hex wrench, loosen all four Hopper Center Support Bracket mounting screws.
4) Support Bracket mounting holes allow vertical movement of the bracket, to adjust Hopper fit or alignment within the freezer compartment. [**Note**: The Side Hopper Mounting Brackets can also be adjusted up or down in a similar manor, as needed.]
5) Shift upper bracket up or down as needed.
6) Tighten upper bracket mounting screws.
7) Slide both Hoppers on to mounting brackets and visually check Hopper alignment.
8) Repeat adjustment as needed, until both Hoppers are parallel and slide on and off the support bracket easily. [See Photo 2]
9) Remove both hoppers and tighten <u>all</u> Hopper Support Bracket mounting screws.

[Photo 1]

Use a 13 mm Allen/hex wrench to loosen all Hopper Support Bracket screws. Shift top or bottom of support bracket right or left as needed.

[Photo 2]

To check Hopper Bracket alignment, ensure both Hoppers install easily and are parallel with roughly ½" [13 mm] between Hoppers.

Ø

3.7 Load Cell Calibration

PROBLEM: Load cell replacement per 2.6, replacement of circuit board per 2.16 and other situations may require that the load cell be re-calibrated to obtain accurate fry basket loading for Small, Medium and Large loads.

1) Roll the unit out to allow access to rear service panels.
2) Remove the upper and lower back service panels.
3) Locate the Main Control Board for the Lane that requires load cell calibration. [See Photo 1]
4) Product hopper should be removed and set aside, and any remaining fries removed from stainless Chute before proceeding. Do not remove the stainless Chute.
5) Switch ON Main Power Switch at the front control panel. LCD display will display: START? [See Photo 2] If Lane OFF/ON button is illuminated, turn lane OFF now.
6) Note the three white switches just below the LCD display and marked SW1, SW2 and SW3. Below switches, check position of slotted pointer (orange) inside square potentiometer (black) marked "S1". If not positioned "⏚" rotate to this position using miniature screwdriver [See Photo 3]
7) Press SW1 and SW3 at the same time, to enter program mode. [See Photo 2]
8) LCD display will show "CALIBRATE: 1=OK; 2=Mor; 3=Ex". [See Photo 4]
9) Press, hold and then release SW1 to enter the Calibration mode.
10) Observe LCD that display changes to "ALL CLEAR?? S1=OK; S3=Exit". [See Photo 5]
11) For next steps, the stainless Product Chute should be in place, but the product hopper should be removed and set aside, and any remaining fries removed from Chute.
12) Press SW1 to continue with calibration.
13) Wait several seconds while the processor calibrates its "Zero" load condition. LCD display will scroll thru several screens.
14) LCD display will then change to "Add 1.5 Pounds SW1=OK". [See Photo 6]
15) Add a 1.5-pound weight to the stainless Product Chute inside the freezer compartment. (NOTE: If a calibrated weight is not available, use 6 each frozen 4:1 hamburger patties to approximate the 1.5 pound weight.) [See Photo 7]

[Photo 1]

The Control Board LCD display is at upper right.

[Photo 2]

LCD display will read: "Start?" Press SW1 & SW3 together to enter program mode.

[Photo 3]

Slotted pointer should be oriented to "⏚" before starting calibration routine.

[Photo 4]

Begin calibration by pressing SW1.

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3.7 Load Cell Calibration Continued

16) Press SW1 and observe the LCD display for up to 10 seconds; display will flash several screens momentarily and then show “SW1=Cal SW3=Exit” [See Photo 8].
17) Press SW3 to exit Calibration mode. LCD display will show CALIBRATE: 1=OK; 2=Mor; 3=Ex. [See Photo 4]
18) Press SW3 again to exit Program mode. After a few seconds, display will go to “Start?” as seen in Photo 2.
19) Remove 1.5-pound weight from the Product Chute.
20) Reinstall Product Hopper in freezer and fill it with 2 bags of frozen Mac Fries.
21) Check LCD display to insure “Start?” is shown for Lane being refilled with Mac Fries. [See Photo 2]
22) Power up the Lane being calibrated by pressing and holding Lane ON/OFF button on Operator’s Panel.
23) Dispense several loads from this lane at each size: Small, Medium and Large, to verify calibration procedure has been completed successfully.
24) Refer to Section 3.4 for adjusting “Standard” load size, if this is required by operator preference.
25) Replace rear service access covers.
26) Return F3D to normal operating position.

[Photo 5]

At “All Clear” screen, check to insure Hopper/Drum is removed, Product Chute is in place, and all fries are removed from Chute. Press SW1 to continue.

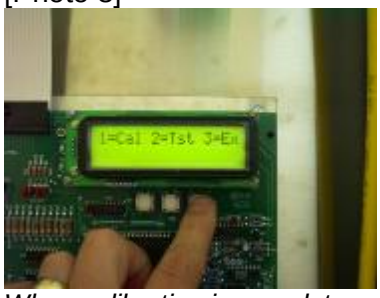
[Photo 6]

Add 1.5 lb. weight to Product Chute as shown in Photo 6, then press SW1.

[Photo 7]

Add 1.5 lb. weight (or 6 frozen 4:1 hamburger patties) then press SW1.

[Photo 8]



When calibration is complete LCD screen will prompt you to press SW3 [= Exit] twice & then display “Start?” (See Photo 2)

4.1 Basic [Operator] Refrigeration Maintenance

[Before attempting service failure diagnosis or component repairs, verify basic operator maintenance has been done.]

PROBLEM: Freezer is running but will not reach 0° F [-18° C] or lower. High temperatures caused by a dirty condenser coil or extreme ice buildup may cause the freezer to function improperly, not maintain temperature or cease operating.

1) Open the freezer compartment door and verify that it has been defrosted. If significant ice buildup is present, turn OFF main power, open the freezer compartment door and allow the ice to melt.
2) Check freezer door gasket for damage. If damage is found, see Section 2.2 Door Gasket Replacement.
3) Remove front bottom louvered access panel. [Lift up and pull out.]
4) Inspect the Condenser Coil Filter. If dirty, wash in sink. Allow the filter to dry completely before replacing.
5) Inspect the condenser coil to ensure it is clean and free of dust and debris. If it is dirty, clean it with a soft bristle brush or portable vacuum.

CAUTION

Avoid contact with fins on the condenser coil and any refrigeration lines. The fins are very sharp and can cause cuts. Certain refrigerant lines can be very hot and could cause burns to exposed skin. The use of gloves is recommended.

6) Inspect the Condenser Coil Filter. If dirty, wash in sink. Allow filter to dry completely before replacing.
7) Test unit for operation within 0° to -10° F [-18 to 23° C] normal operating temperature range.
8) If these steps correct problem, notify unit manager of problems noted with crew cleaning or operator preventative maintenance. If problem persists, see Troubleshooting Guide and Sections 4.2 - 4.9.

PROBLEM: The Freezer will not run when turned ON.

1) Verify unit is plugged in to110-volt power supply.
2) Check circuit breaker for that outlet or use a test meter to verify power at outlet.
3) If these simple steps return unit to service, notify unit manager of fix.
4) If unit is plugged in, turned on and power is present at the outlet but Refrigeration System will not power-up, see Troubleshooting Guide and Sections 4.4 through 4.9.

[Photo 1]

To inspect condenser coil and coil filter, remove louvered access panel under Main Drip Tray.

[Photo 2]

Inspect the condenser coil filter. If dirty, wash in the sink and allow to dry before replacing.

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4.2 Freezer Thermostat Adjustment

1) Open freezer door and confirm Freezer Compartment has been defrosted, per Store-Closing Procedure outlined in F3D Operator Manual. Close freezer door.
2) Open the bottom-front louvered access panel [lift up and pull-out] and verify the condenser coil filter is clean and there isn't dust and debris around the condenser coil.
3) Find thermostat. **Note**: The factory thermostat setting is 4, which results in freezer compartment temperature of 0 to -10° F [-18 to -23° C], at average ambient room temperatures.
4) If the steady state freezer operating temperature is 5° F [-15° C] or higher, adjust thermostat down (turn clockwise toward "colder") in ½ unit increments, as required. [Most adjustments will be "colder" to lower operating temperatures because of high ambient room temperatures and humidity.]
5) Allow the freezer temperature to stabilize after each incremental adjustment. Repeat as needed until target operating temperature range is reached.
6) If steady state freezer operating temperature is -15° F [-26° C] or below (too cold), adjust thermostat up (turn counterclockwise toward "warmer") in ½ unit increments, as required. [Allow the freezer temperature to stabilize after each increment adjustment.]
7) Assuming Main Power is ON, allow the compressor to operate until it cycles off. Check freezer compartment temperature. If in the 0 to -10° F [-18 to -23° C] range, no further adjustments are necessary.
8) **Tip**: If trying to raise freezer steady state temperature, open freezer door to dump cold air, close door and allow freezer to regain steady state temperature.

[Photo 1]

Check freezer compartment to verify it has been defrosted.

[Photo 2]

Open louvered front panel to check condenser coil filter and access thermostat.

[Photo 3]

Unit ships from factory with thermostat preset at 4. Gradually increase this setting toward 7, in ½ unit increments, to lower freezer compartment temperature.

4.3 Freezer Thermostat Replacement [Cutler-Hammer Model: 9530N1230; Franke P/N: 3579301]

1) F3D Dispenser should be OFF and the freezer compartment fully defrosted, before proceeding.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Open the bottom-front louvered access panel [lift up and pull-out] and find the thermostat.
4) The Cutler-Hammer Thermostat has a control with an attached sensor. Remove the press fit control knob from the thermostat.
5) Using a small Phillips screwdriver, remove the two screws holding thermostat to the back panel.
6) Remove the two mounting screws to remove that lower back panel.
7) Mark the existing sensor line just before it enters the 5/16" [8 mm] copper line. This will insure the new sensor is placed in the same location.
8) Remove the old sensor by gently pulling on its capillary tubing.
9) Place the new sensor next to the old and mark the new sensor tubing in the same location.
10) Lubricate the new sensor line with lightweight machine oil and feed it through the 5/16" [8 mm] copper tubing until your mark is in the same location as the old sensor line.
11) Rewrap and the foam insulation that was removed previously.
12) Replace the rear back panel.
13) Using the screws previously removed, mount the new thermostat control in its mounting position. Replace the press fit control knob. [See Photo 3]
14) Verify the new thermostat is set between 3-4.

Test Operation of new thermostat by:

15) Plug in unit to a 110-volt power source.
16) Turn ON unit at Main Power-ON Switch.
17) Allow compressor to draw unit down to its normal operating temperature range, which should be between 0 and -10° F [-18 to -23° C]. [Cool down time of 1-1/2 to 2 hours is normal.]

18) Close lower front and lower rear louvered access panels and return dispenser to normal operating location.

[Photo 1]

Open louvered front panel to access freezer thermostat.

[Photo 2]

Mark existing thermostat sensor line where it enters the 5/16" [8 mm] copper tubing line set.

[Photo 3]

Unit ships from factory with thermostat preset at 4. [Dial range is from 1 to 7.]

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4.4 Condenser Fan Motor Replacement [Part Number: M40045-CA27-E8, 115V, 60 HZ, 0.45A, 9 watt]

1) Roll F3D unit out to allow access to the rear service access panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the lower service access panel.
4) Using a 7/16" [11 mm] box wrench or socket, remove the four condenser base plate mounting bolts.
5) Slide Refrigeration Package out of unit bottom, to extent of compressor wiring harness. [**CAUTION**: Do not bend or kink refrigeration lines.]
6) Using a ¼" [6-7 mm] flat screwdriver, remove the spring clip from the plastic cover on side of compressor shell.
7) Disconnect the three Condenser Fan Motor wires from the terminal block using needle nose pliers. [Wire colors are Blue/Brown/Green.]
8) Using a 1/8" [3 mm] Allen/hex wrench, remove the two Condenser Fan Motor mounting screws.
9) Attach the new Condenser Fan Motor to bracket using the two mounting screws just removed.
10) Reattach the three Fan Motor wires at terminal block. [Wire colors are Blue/Brown/Green.]
11) Close and secure the plastic cover using the spring clip previously released.
12) Push the Refrigeration Package back into the F3D Dispenser base and position over the mounting holes.
13) Replace and tighten the four 7/16" [11 mm] mounting bolts.
14) Check refrigeration lines for damage before proceeding.

Test Operation of new Condenser Fan Motor by:

15) Plug in unit to a 110-volt power source.
16) Turn ON unit at Main Power-ON Switch.
17) Allow compressor to draw unit down to its normal operating temperature range, which should be between 0 and -10° F [-18 to -23° C]. Unit should maintain that operating temperature if freezer compartment door remains closed.

18) Close the lower rear service access panel and return dispenser to normal operating location.

[Photo 1]

Remove the four Refrigeration Assembly mounting bolts.

[Photo 2]

Disconnect Condenser Fan Motor wires inside the plastic cover on the side of compressor.

[Photo 3]

Remove the two motor mounting screws.

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4.5 Compressor Capacitor Replacement [Part Number: 117U5028-E1A-463, 410 µF] and/or Start Relay Replacement [Part Number: 117-7441]

1) Roll F3D unit out to allow access to the rear service access panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the rear lower service access panel.
4) Remove the two screws securing the condenser electrical box cover.
5) Using needle nose pliers, carefully remove the capacitor leads from the terminal block, without touching each other or the metal box.

WARNING
High voltage warning. Use caution. There is a danger of electrical shock, which can cause injury or even death!

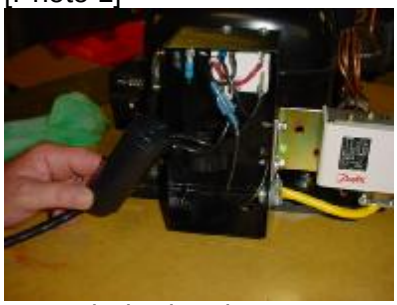
6) Unsnap the plastic retainer clip holding the capacitor, and then remove the capacitor from its enclosure.
7) Install the new capacitor and snap retainer clip.
8) Connect capacitor leads to the terminal block.

Test operation of Compressor by:
9) Plug in unit to a 110-volt power source.
10) Turn ON unit at Main Power-ON Switch.
11) If compressor starts and runs, proceed to Step 20.

12) **To replace Start Relay:** Using needle nose pliers, disconnect the 7 wires from the relay terminals.
13) Using a small screwdriver remove 2 screws mounting the relay to the electrical enclosure and remove the relay.
14) Install the new relay and secure with those two screws.
15) Reconnect the 7 wires to the relay terminals, as follows: T1 = Black from capacitor; T2 = Red from compressor; T4 = Black from capacitor, White from power cord and White from compressor; T5 = Black from power cord, Black from compressor.
16) Replace electrical cover using 2 screws to secure.

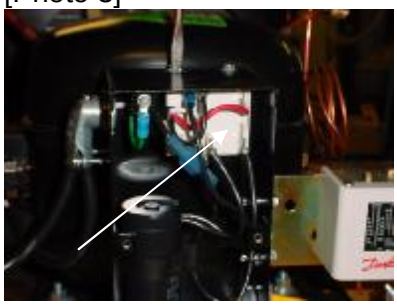
Test operation of Compressor by:
17) Plug in unit to a 110-volt power source.
18) Turn ON unit at Main Power-ON Switch.
19) If compressor starts and runs, proceed to Step 20.
20) Close the lower rear service access panel and return dispenser to normal operating location.

[Photo 1]



Try replacing just the compressor capacitor first.

[Photo 3]



If replacement of the capacitor does not start the compressor, replace the start relay.

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4.6 Check System [Refrigerant] Pressure and Electronic Leak Detection

1) Roll F3D unit out to allow access to rear service access panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the lower service access panel.
4) Using a standard manifold refrigeration gauge, confirm the following pressures:
   a) For units with **18 oz. [510 gm] R404A charge:**
      - ø Discharge Valve: 230 +/- 10 psig [16 ± 1 Bar] @ 80˚F/27°C ambient
      - ø Suction Valve: 5 +/- 2 psig [.4 ± .1 Bar] @ 80˚F/27°C ambient
   b) For units with **14 oz. 397 gm]R404A charge:**
      - ø Discharge Valve: 200 +/- 10 psig [14 ± 1 Bar] @ 80˚F/27°C ambient
      - Ø Suction Valve: 3 +/- 2 psig [.2 ± .1 Bar] @ 80˚F/27°C ambient
5) If Discharge Valve pressure is HIGH and Suction Valve pressure is LOW, check for a kinked or restricted line.
6) If a kinked or restricted line is found, **See Section 4.8** for Filter/Dryer Replacement.
7) If Discharge Valve Pressure is LOW and Suction Pressure is LOW, verify leak and location with an Electronic Leak Detector. [If existing system pressures are high enough, a thorough scan with a standard leak detector may be sufficient to locate the exact location.]
8) If system pressure is too low or leak[s] is intermittent and difficult to detect, pressurize the system with Nitrogen to an equalized MAXIMUM of 150 PSIG [10.5 Bar].
9) Use electronic leak detector or application of a soap solution to locate any and all leaks.
10) **IMPORTANT**: Make sure the condensing unit is off when checking for leaks. Air movement from the fan would inhibit the ability of the leak detector to sense refrigerant.

NOTE: Do not use an electronic leak detector to locate leaks inside the freezer evaporator housing. The foam insulation used inside the evaporator housing contains HFCs, which will generate false readings. Call Franke Service if you suspect a leak in this area.

11) If a leak is found, **See Section 4.7** for Leak Repair Procedures.

[Photo 1]

Check Discharge and Suction Valve pressures using a manifold refrigeration gauge.

[Photo 2]

If system pressure is too low or the leaks difficult to pinpoint, pressurize system with 150 PSIG [10.5 Bar] of Nitrogen and use an electronic leak detector or soap solution.

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4.7 Repair System [Refrigerant] Leak

1) Roll F3D unit out to allow easy access to rear service access panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the lower service access panel.
4) Using a 7/16" [11 mm] box wrench or socket, remove the four Refrigeration Package mounting bolts.
5) Slide Refrigeration Package out of unit bottom, to extent of compressor wiring harness.
6) Repair or replace refrigerant lines as needed.
7) **Note**: Recover any residual refrigerant and ensure line pressure is equalized to zero, before opening the refrigeration system.

> **IMPORTANT**: Any residual refrigerant charge should be recovered in strict accordance with the Federal Clean Air Act.

8) **Note**: For larger leaks that may have contaminated the system, replace the capillary tube and filter [See Section 4.8]. In addition, the system may need to be drained completely and new Polyol Ester Oil added. If required, the old Polyol Ester Oil should be recovered and disposed of in accordance with Federal Laws covering the handling of hazardous materials.
9) When resealing the system, use a continuous Nitrogen charge to assure no contaminants enter the system, especially when brazing.
10) Before recharging the system, pull a vacuum equivalent to 30 inches [760 mm] of Mercury, for a minimum of 30 minutes.
11) Recharge the system with R404A refrigerant, per nameplate label specification.

Test operation of Refrigeration System by:

12) Plug in unit to a 110-volt power source.
13) Turn ON unit at Main Power-ON Switch.
14) If compressor starts and brings the Freezer compartment down to the normal operating temperature range of 0 to -10° F, proceed to Step 15.
15) Push the Refrigeration Package back into the F3D Dispenser base and position over the mounting holes.
16) Replace and tighten four 7/16" [11 mm] mounting bolts.
17) Close the lower rear service access panel and return dispenser to normal operating location.

[Photo 1]

Remove the four Refrigeration Assembly mounting bolts.

[Photo 2]

Recover any residual refrigerant and ensure line pressure is zero before opening system.

[Photo 3]

When resealing the system or repairing leaks, use continuous Nitrogen charge to keep contaminants out.

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4.8 Capillary Tube & Filter Assy. Replacement [Part Number: 1112109 (Filter/Dryer)]

[If Refrigeration Package has been pulled, proceed to Step 6.]

1) Roll F3D unit out to allow easy access to rear service access panels.
2) Disconnect power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the lower service access panel.
4) Using a 7/16" [11 mm] box wrench or socket, remove the four Condenser Base Plate mounting bolts.
5) Slide Refrigeration Package out of unit bottom, to extent of compressor lines and wiring harness.
6) **Note:** Recover any residual refrigerant and ensure line pressure is equalized to zero, before opening the refrigeration system.

> **IMPORTANT**: Any residual refrigerant charge should be recovered in strict accordance with the Federal Clean Air Act.

7) Cut line to free capillary tube using a small tubing cutter. Remove existing Capillary Tube & Filter Assembly.
8) Install new Capillary Tube & Filter Assembly [P/N: 1112109]. Braze lines as required.
9) Using plastic wire ties, route and re-bundle capillary tube with line set.
10) When resealing the system, use a continuous Nitrogen charge to assure no contaminants enter the system, especially when brazing.
11) Before recharging the system, pull a vacuum equivalent to 30 inches [760 mm] of Mercury, for a minimum of 30 minutes.
12) Recharge the system with R404A refrigerant per nameplate label specification.

Test operation of Refrigeration System by:

13) Plug in unit to a 110-volt power source.
14) Turn ON unit at Main Power-ON Switch.
15) If compressor starts and brings the Freezer compartment down to the normal operating temperature range of 0 to -10° F [-18 to -23° C], proceed to Step 16.
16) Push the Refrigeration Package back into the F3D Dispenser base and position over the mounting holes.
17) Replace and tighten the 7/16" [11 mm] mounting bolts.
18) Close the lower rear service access panel and return dispenser to normal operating location.

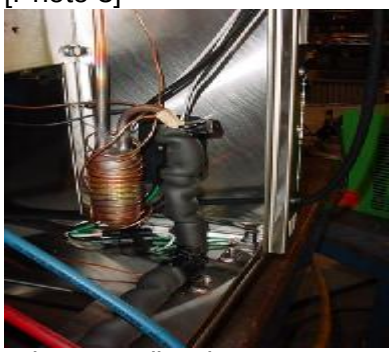
[Photo 1]

Remove the four Refrigeration Assembly mounting bolts.

[Photo 2]

Recover any residual refrigerant and ensure line pressure is zero before opening system.

[Photo 3]



When resealing the system, use a continuous Nitrogen charge to keep contaminants out.

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4.9 Condensing Unit Replacement [Part Number: 19000359]

[If Refrigeration Package has been pulled, proceed to Step 6.]

1) Roll F3D unit out to allow easy access to rear service access panels.
2) Disconnect F3D power at outlet. [Pull 110-Volt plug.]
3) Using a 3/8" [10 mm] flat screwdriver, remove the lower rear service access panel.
4) Using a 7/16" [11 mm] box wrench or socket, remove the four Refrigeration Assembly mounting bolts.
5) Slide Refrigeration Package out of unit bottom, to extent of compressor lines and wiring harness.
6) Unplug the compressor power cord at the Main Electric Supply junction box.
7) **Note:** Recover any residual refrigerant and ensure line pressure is equalized to zero, before opening the refrigeration system.

> **IMPORTANT**: Any residual refrigerant charge should be recovered in strict accordance with the Federal Clean Air Act.

8) Cut the refrigerant lines.
9) Clean and prepare the refrigeration line fittings, then braise line connections.
10) **Note**: When resealing the system, use a continuous Nitrogen charge to assure no contaminants enter the system, especially when brazing.
11) Before recharging system, pull vacuum equivalent to 30 inches [760 mm] of Mercury, for minimum of 30 minutes.
12) Recharge the system with R404A refrigerant, per nameplate label specifications.
13) Plug in condenser power cord at power junction box.
14) Slide the Refrigeration Package back into the F3D dispenser base and position over mounting holes.
15) Replace and tighten four 7/16" [11 mm] mounting bolts.

Test operation of Refrigeration System by:

16) Plug in unit to a 110-volt power source.
17) Turn ON unit at Main Power-ON Switch.
18) If compressor starts and brings the Freezer compartment down to the normal operating temperature range of 0 to -10° F [-18 to -23° C], repair is complete.

19) Close the lower rear service access panel and return frozen fries dispenser to normal operating location.

[Photo 1]

Remove the four Refrigeration Assembly mounting bolts.

[Photo 2]

Recover any residual refrigerant and ensure line pressure is zero before opening system.

[Photo 3]

When resealing the system, use a continuous Nitrogen charge to keep contaminants out.

@Tools/Supplies Required:

- Ø 3/8" [10 mm] flat screwdriver
- Ø 7/16" [11 mm] box wrench or socket
- Ø Refrigerant Recovery Tank & fittings
- Ø Nitrogen Charge Tank
- Ø R404A Refrigerant
- Ø Tubing Cutter
- Ø Brazing Torch, etc.
- Ø Plastic wire ties

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